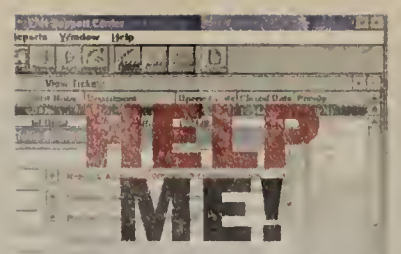
OCTOBER 2, 1995 VOLUME 12, NUMBER 40

NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING



Our Test Alliance checks out three help desk products.
Page 47.

Beware: Extras boost switched network costs

By Jodi Cohen
Atlanta

While show-goers here at NetWorld+Interop were no doubt excited by the number of LAN switches on display, they should keep in mind much more than the base price when tallying the real cost of operating a switched network environment.

But those added costs, mostly for new management software, could be more than offset by efficiencies from a new wave of Remote Monitoring (RMON)-based switch management tools.

Before RMON saves any dollars, though, net managers must first deal with a few unpleasant surprises.

"Some customers are going to be caught short. There is more involved than just dropping a switch in where you had a hub," said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

Unlike a hub port that pro-

See **Costs,** *page 69*

MANAGEMENT CHECKLIST

Don't overlook these factors in figuring out the cost of a switched network.

- Traffic analysis and modeling tools
- End-to-end monitoring tools to manage switched and shared nets from the same platform
- Ongoing baselining and measurement tools to ensure quality of service
- Virtual LAN management applications
- Remote Monitoring support

SOURCE: STRATEGIC NETWORKS, ROCKPORT, MASS.

Cisco scratches switch itch — again

By Jim Duffy

Cisco Systems, Inc. has reached deep into its pocketbook for the fourth time in two years to buy a network switch vendor, this time grabbing fast Ethernet pioneer Grand Junction Networks, Inc. for $348 million.

Grand Junction gives Cisco a much-needed offering at the desktop level. Cisco already owns a switch collection that stretches from the workgroup to the backbone, thanks largely to its previous purchases (see graphic, page 70).

See **Cisco,** *page 70*

Microsoft wants it all

Internet market braces for onslaught of Microsoft browsers, servers and standards.

By Ellen Messmer and Peggy Watt
Atlanta

Though initially slow to recognize the Internet's potential, Microsoft Corp. has turned its gaze upon that kingdom and now hopes to set the pace for software and standards.

While it might not win any popularity contests in the Internet community, sheer market clout seems to assure Microsoft a major role. "Microsoft has very deep pockets and could drive other firms into the dust," said Jerry Johnson, senior policy analyst in the state of Texas department of information resources and planning.

Microsoft *Senior VP Jim Allchin outlined a comprehensive Internet plan.*

As Jim Allchin, Microsoft senior vice president, outlined in a speech last week at NetWorld+Interop, the firm plans to hit the ground running (see graphic, page 69). In particular,

See **Microsoft,** *page 69*

More on Network World Fusion

- The plan to link database and E-mail servers to the Web
- Links for downloading Microsoft's transaction and data security specifications

To access: Point your Web browser at http://www.nwfusion.com. After you log in, select News+ and then The Front Page.

Novell plots three sequels to NetWare

By Kevin Fogarty
Atlanta

Ever gone to Green River, Moab or Park City? Novell hopes you will.

Those places are actually the code names for the next three versions of NetWare, which Novell, Inc. officials described at NetWorld+Interop last week.

The NetWare road map is a major turnaround for Novell, which, in the past, has been closemouthed about its plans.

"That was a major weakness for us," said Richard King, executive vice president and general manager of the Novell Systems Group. "We had not told customers where we were going to take them. Now we will show you our vision and strategy."

Novell's *King calls NetWare road map a new direction for his company.*

The version due out first, code-named Green River, will arrive in mid-1996 with native TCP/IP support and a host of other new features, including:

■ **Commerce Services** — A World-Wide Web-based electronic commerce suite that is based on NetWare and gets transactional security from the Tuxedo transaction processing monitor.

■ **Internet Services** — Better Internet access from NetWare,

See **Novell,** *page 8*

IBM extends client/server management reach

By Michael Cooney
Atlanta

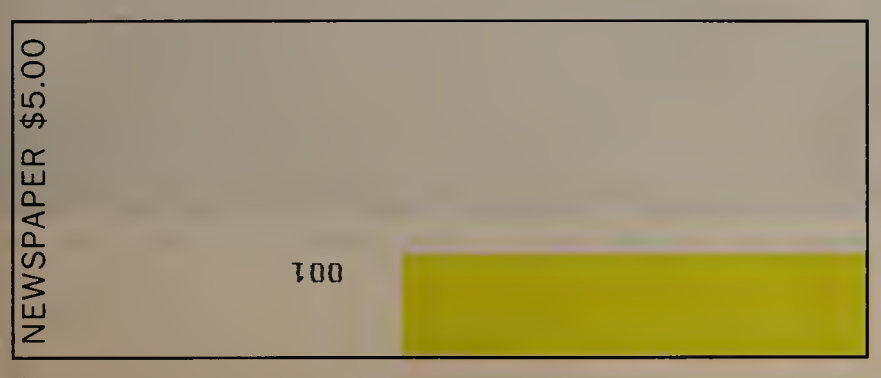
IBM is looking to take some of the mystery out of managing and deploying client/server applications across enterprise nets.

Over the next few months, the company will roll out tools to more easily manage the performance of networked applications and also distribute software to devices across multivendor nets. In addition, products are in the works that will employ IBM's MQSeries message-oriented middleware to aid in client/server application development.

IBM was also one of many vendors here at NetWorld+Interop rallying around a new Management Information Base (MIB) that would let users manage applications from industry-standard Simple Network Management Protocol-based management platforms.

The MIB would define how users handle common application problems such as bottlenecks or failures. The application management MIB could be presented to the IETF by late next year.

See **IBM,** *page 70*



Data warehouse shortcuts due from Sybase

By Barb Cole
Emeryville, Calif.

Sybase, Inc. is quietly turning its flagship database and middleware into a system for automating the creation of data warehouses.

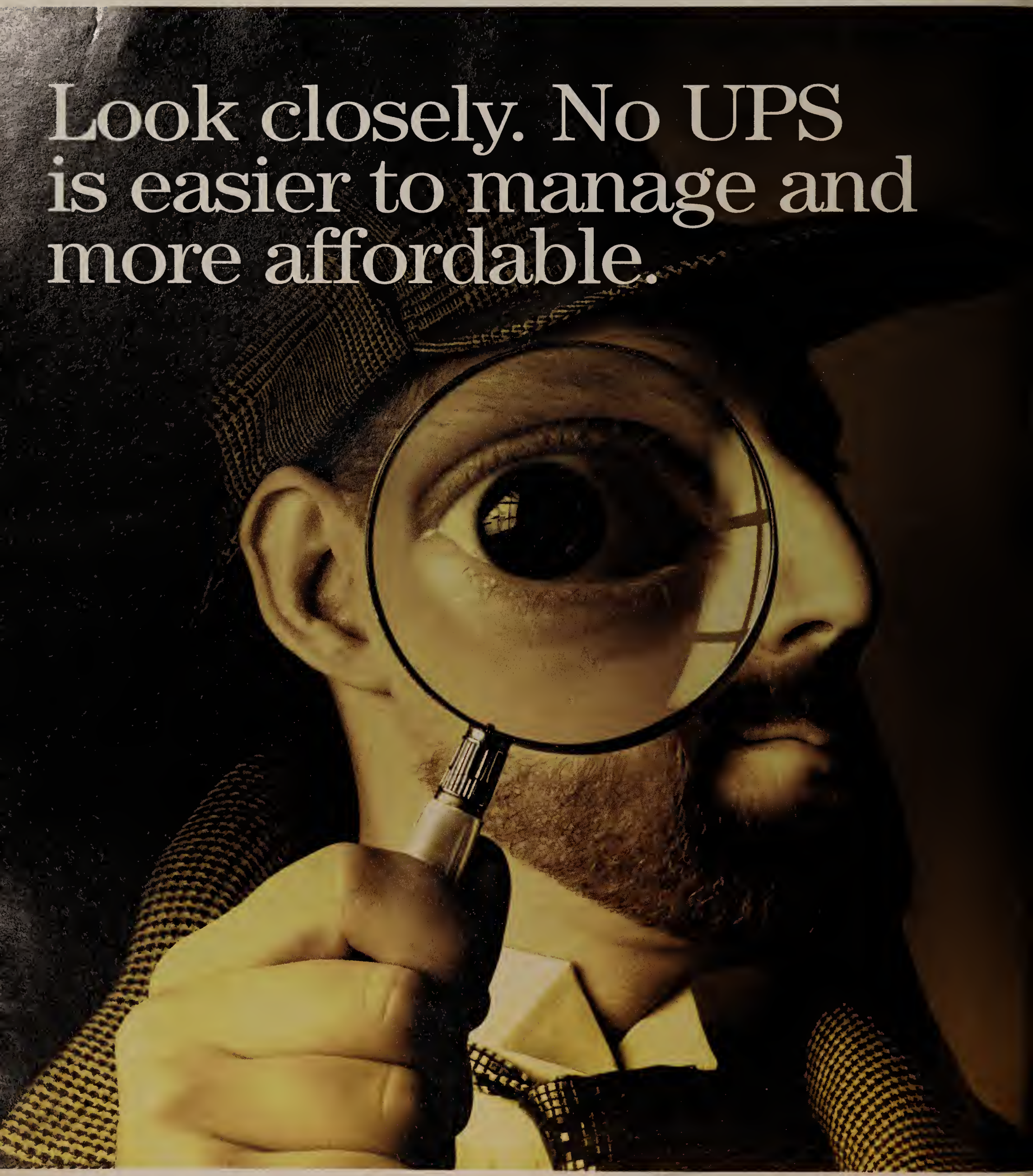
The company will roll out software to synchronize data pulled from networked applications and stuff it into warehouses. Once the data is stockpiled, workers can access it from across the enterprise.

Sybase officials confirmed that the company is creating new

See **Sybase,** *page 6*

NETWORLD+INTEROP

- Somewhere between the arm wrestling matches and networked espresso machines, NetWorld+Interop takes on a decidedly switching flavor. See our special News Briefs on the show. **Page 6.**
- Lotus makes a splash with a tool for linking Notes and relational databases. Also targets Notes 4.0 for enterprise sites. **Page 10.**
- AT&T restructures pricing for Network Notes. **Page 14.**
- OST adds a high-end box to its ATM-based Ethernet switch line. **Page 25.**
- MIMEsweeper looks to prevent viruses carried by Internet mail from bombing your net. **Page 31.**



* List prices as of October 1, 1995. † PowerWise Assistant; shutdown, management and diagnostics software for Windows NT and Novell Netware (other OSs available separately). © 1995 Hewlett-Packard Company. All rights reserved.

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NetworkWorld Fusion

This Week

Go on-line to learn more about the top stories in this issue. Here are some of this week's highlights on Network World Fusion (http://www.nwfusion.com):

News+

The Front Page: See how Microsoft plans to use the Internet as a platform for distributed applications; learn more about IBM's ideas on client/server management; get background on other top news stories.

The Technical Sections: Get background information on the frame-relay pricing wars in WANs and Internetworking, and about workflow in Electronic Commerce.

Forum

Your side: Where is on-line multimedia headed? Voice your views in nwfusion.talk.

NetRef

Broadband: Download Parts 1 through 3 of our ATM Carrier Infrastructure series.

Other Areas

- **Professional Development:** New seminars.
- **DirectConnect:** Download demo software.
- **Network World Central:** Get in touch with us.

this week's pick

There are plenty of on-line resources for helping you find new employees. Find out where by following this week's Hotlinks in NetRef.

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NetworkWorld
An IDG Publication

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NetworkWorld's *Mission: To provide news and analysis that help network IS professionals deliver the network computing infrastructure and distributed applications required to meet evolving business needs.*

NETWORLD+INTEROP

News Briefs, October 2, 1995

Switching, switching, switching — and a few other things — were the themes of last week's NetWorld+Interop show. Here's a roundup of some newsy and amusing show happenings:

CrossComm takes ATM aim

CrossComm Corp. announced last week a workgroup ATM switch for under $1,000 per port. The XLX ATM Workgroup Switch is a 5G bit/sec module for CrossComm's XL10 chassis that sports 12 155M bit/sec multimode fiber ports. It costs $11,950 and will be available later this year.

Strolling down token-ring and Ethernet LANE

Bay Networks, Inc.'s Centillion division ran a preview of its token-ring and Ethernet LAN Emulation (LANE) software, providing a comparison with standard switched token ring and Ethernet running over an ATM backbone. Centillion will not ship its LANE software for several months but wanted to show users the difference it will make, said Selina Lo, Centillion's vice president of marketing. The demonstration compared full-motion video carried over a 155M bit/sec LANE link, with switched 10M bit/sec Ethernet and 16M bit/sec token ring carried over an Asynchronous Transfer Mode (ATM) pipe. "With LAN emulation, you get full access to the available bandwidth, while switched LAN traffic over an ATM backbone is still limited to that native LAN media speed," Lo said.

Merger mania

One topic generating a buzz at the show was the consolidation of networking vendors, with Cisco Systems, Inc.'s purchase of Grand Junction, Inc. punctuating that trend. This led some to speculate that in five years, the show will have only two booths — Cisco's and 3Com Corp.'s — but they will be as large as football fields.

Joking aside, many users lament consolidation. "We end up with less choices, and the companies that are still out there always have some strategic alliance with somebody else and they try to push that on you, too," observed Annette Posey, project manager with Milcom Systems Corp., a systems integrator in Virginia Beach.

Coffee break

Some network technology enables mission-critical applications; some just helps you wake up in the morning. Novell, Inc. last week demonstrated an espresso maker connected to a network via an adapter card running NetWare Embedded Systems Technology. It comes with a graphical menu running on a PC, which keeps statistics on how many cups the machine brews, among other things. What's next? A connection between the espresso maker and an alarm clock.

Chaos avoided

On Monday night after many vendors had completed their booth setups, the people running the show network realized many of the net addresses given to vendors had been duplicated. That meant lots of people and devices would not be able to communicate. So, much to the net operators' chagrin, they had to reissue all new IP addresses.

The height of folly

It was hard to ignore Cabletron Systems, Inc. at NetWorld+Interop. The company kicked off the week with a press extravaganza at the Hard Rock Cafe that culminated with headliner Joe Piscopo arm wrestling fellow iron man Bob Levine, Cabletron's president (Levine crushed him). That theatrical motif was carried over to Cabletron's show booth, which featured a stage, blaring music, disco lights and four dancers singing the praise of Synthesis. "If we've made believers out of you, let me hear you shout 'I believe,' " the dancers cajoled. What some people will do for T-shirts.

AT&T price promise questioned

By David Rohde
Washington, D.C.

AT&T is set to make an unprecedented guarantee that could protect many large users from price hikes and other unfavorable tariff changes for a full year.

But rather than applauding, users and analysts expressed skepticism, saying that various loopholes could let the carrier squirm out of its commitment.

The AT&T offer is part of a campaign by the carrier — stepped up since the announcement that the company would split in three — to be classified by the Federal Communications Commission as an ordinary, rather than dominant, carrier.

Among other things, the reclassification will end AT&T's obligation to give the FCC more lead time in filing rate changes as well as more information about network interfaces than is required of MCI Communications Corp., Sprint Corp. and others.

The price guarantee offer was made by Gerry Salemme, AT&T's vice president of government affairs, in a letter to the FCC one day after AT&T Chairman Robert Allen announced the company's breakup.

Attorneys for large users last week were treating the offer warily, warning that it contains too many qualifications. But they said the FCC was likely to accept the offer — and other guarantees ostensibly protecting resellers and residential customers — as part of an overall arrangement releasing AT&T from longstanding obligations that are not forced on any other long-distance carrier.

The guarantee lasts for one year past the date the FCC drops the dominant label on AT&T and would apply every time AT&T "initiates an adverse change in a business term plan." While this term seems purposely ambiguous, observers believe it refers to price hikes, a reduction in discount or an increase in minimum annual commitment — really anything that would no longer give customers the same rate.

At that point, AT&T would have two options. It could either grandfather existing users for the remaining service term under the same "rates, terms and conditions" they were receiving before. Or it could give existing customers 60 days to end

See **AT&T,** *page 70*

NW launches two net seminars for nationwide tour

Network World this month launches two new seminar series, one on advanced internetworking issues and the other on basic network issues.

The "Internetworking: Designing LANs, WANs & Broadband Networks" seminar kicks off in Boston on Oct. 16 and tours 10 other cities through mid-March, including Atlanta, Dallas and San Francisco. Mark Miller, president of DigiNet Corp. and *NW* contributing editor, will present the two-day seminar, which costs $895.

The "Fundamentals of Networking & Data Communications" seminar starts in New York on Oct. 16 and visits nine other cities, winding up in San Francisco in mid-April. Ray Horak, president of The Context Corp., is presenting the two-day seminar, which costs $895.

For more information, call (800) 643-4668 or visit our Web site at http://www.nww.com/seminars. ■

Sybase

Continued from page 1

technology, code-named Conveyor, to unify metadata from Sybase database, middleware and application development products, as well as from other vendors' programs.

Data warehouses pull information from networked applications and databases into a data store, which provides a single place for running queries and mining business trends.

Sybase's metadata management tools will be designed to work with multiple databases.

Today, building a data warehouse is costly and time-consuming because data must be moved from existing data stores — sometimes manually — and metadata needs to be translated into a common format. Metadata is information about data from operational databases and other applications, and it typically is based on a proprietary format. So, for example, it is not uncommon for one database to define sales numbers one way and another to do it a different way.

Conveyor technology, when combined with Sybase's Information Connect gateways, is expected to let users load data from disparate sources at high speeds and automatically synchronize the underlying metadata.

Erin Kinikin, senior director of data warehousing at Sybase, said this type of technology is sorely needed. Most products store metadata in a proprietary format, she said, leaving users without a centralized means for tracking the history and source of information in the warehouse.

In addition to providing a cohesive view of data in a warehouse, a common metadata format across Sybase's product line will make management and maintenance of its own software easier, Kinikin said. Changes made to the metadata in one product could be reflected in others, as well, she added.

Within Sybase's product line, there are several places where metadata is collected in different formats. These include the database catalog in SQL Server, information in the PowerBuilder application tool, replication scripts in Replication Server and systems management information in a suite dubbed Enterprise SQL Server Manager. In addition, the company's OmniSQL Server has a global catalog that tells users what data is stored in multiple databases and front-end applications, Kinikin said.

Sybase's metadata management tools will roll out in a series of products next year, Kinikin said. These tools will have links to non-Sybase products, such as existing extraction tools, and will be designed to work with multiple databases, she explained.

What format Sybase will put its metadata into is less clear, according to Kinikin.

"As an industry, we need to work on metadata interoperability," she said. "A likely outcome is that multiple metadata formats made to work with each other will be available."

Analysts said there is a need for tools that unify metadata across networks, but such tools need to be seamless for administrators. "It needs to be outrageously easy to implement or it will add another layer of complexity [to data warehousing]," said Brian Murphy, an analyst at The Yankee Group, a market research firm in Boston. ■

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Novell

Continued from page 1

including the ability to store and link Web addresses to NetWare Directory Services (NDS).

■ **AppServer Manager** — An agent residing on non-NetWare application servers that synchronizes their name spaces with NDS and make them manageable objects in NetWare nets.

■ **Object Services** — The ability of NDS to store and manage objects across the network.

■ **Licensing Service** — Based on the NetWare License Service Novell introduced last year.

■ **Transaction Services** — Based on Tuxedo and integrated tightly with NetWare and NDS.

■ **Application Manager** — A utility to distribute and manage applications in NetWare nets.

■ **NetWare Distributed Print Services** — Advanced print service announced earlier this year.

Observers like the plans. "I think Novell has done its homework well," said Mark Tebbe, president of network integrator Lante Corp. in Chicago. "People in the corporate market perceive that NetWare is yesterday's technology and NT is tomorrow's technology. At least that's what they think when they hear Microsoft talk about Cairo, when Novell hasn't made a lot of comment [on its plans]."

CLOSER TO HOME

Unlike rival Microsoft, which roamed the Earth for operating system code names such as Chicago and Cairo, Novell picked names like Green River, Moab and Park City, which are just as poetic but much closer to home. All are cities in Novell's native Utah.

Others disagree. While the new services would be an advance for NetWare technically, most of Green River's features are already available from Unix and NT, said Moses Sun, supervisor of systems net development and support for the Ocean Drilling Program at Texas A&M University in College Station.

Novell is attacking this problem. The new service are part of an overall plan to make NetWare a better platform for electronic commerce and an integrator of multiple application server platforms, including Windows NT and Unix.

"Novell is just playing the catch-up game," Sun said. "All everyone wants to do is publish and do business over the Internet. Novell doesn't have a solution for that, but with NT, it's simple. That puts Novell's box in a disadvanteged position."

At about the same time Green River is released, Novell will launch the first two stages of a three-part plan for integrating Windows NT and other operating systems into NetWare.

The first stage is the release next year of Net2000, a set of APIs that will run on multiple operating systems and give applications running on them full access to NetWare services.

The second stage, due at the same time as Net2000, is an agent that will synchronize the domain name service on Windows NT with NDS, giving NetWare users full access to both systems with a single logon and allowing them to administer both from a single interface.

The third step will be to port NetWare services, including NDS, to run natively on NT and various Unix platforms. Those ports will begin to roll out next year, when The Santa Cruz Operation, Inc. rolls out a version of its Unix platform combined with NetWare, King said.

Moab

A later version, code-named Moab and due in 1997, will include an update to the NetWare file service that relies on NDS to find files and other information in the net. It also adds clustering and improves NetWare's ability to run as an application server by adding preemption, which lets applications run in protected memory.

Park City

The third version of NetWare, Park City, is due in 1998. It will be a full 64-bit operating system that supports distributed parallel processing — the ability to distribute applications so completely across the net that they can use idle CPU time on PCs or other hardware for extra processing power.

That version will also see NetWare services pulling together nearly all major network operating systems, according to Novell officials.

Each new version will add more versatility to NetWare, making it a progressively better applications server, according to Lante's Tebbe.

That flies in the face of Novell's stated intent to get out of the application serving business but ultimately strengthens NetWare as a product, Tebbe said.

"This [plan] gives a good perspective; applications can just be services in a traditional NetWare environment," he said. ■

The company that dominates large LANs also hopes to get small.

Novell, Inc. will continue to build technology to make it easier to connect intelligent devices using its NetWare Embedded Systems Technology (NEST), especially across electrical power lines, said Darl McBride, vice president and general manager of Novell's Extended NetWare division.

Novell is developing a transformer and a small router that will let users add NEST to devices that do not directly support NEST technology. The transformer, which will probably sell for between $2 and $4, will fit on electrical plugs of microwave ovens, coffee makers, televisions, stereos and other devices that have embedded semiconductors.

The transformer will allow these devices to communicate in a peer-to-peer network across electrical power lines.

The router, a black box that will probably cost between $200 and $500, will route traffic from the devices in the home or office network. In addition, it will support dial-in access and direct LAN connectivity, allowing users to control the devices locally or remotely using their PCs.

The devices could also create a simple branch office LAN for networking PCs in an office, McBride said.

The transformer and routers, which Novell is developing with an unnamed hardware manufacturer, will be available next year.

Along with its overall product road map, Novell announced a bevy of NetWare enhancements aimed at increasing its power and reach.

NetWare SMP

In November, the symmetrical multiprocessing (SMP) version of NetWare will be available, but only from systems vendors, which will tune the product to run with their hardware. The SMP version should make NetWare a better application server platform and make Novell, Inc.'s own services, such as the NetWare Directory Services (NDS) distributed database, run faster.

Resellers include Acer America Corp., AT&T Global Information Solutions, Compaq Computer Corp., Dell Computer Corp., Digital Equipment Corp., Fujitsu America, Inc., Hewlett-Packard Co., Hitachi America, Ltd., IBM, ICL North America, NEC America, Inc., NetFRAME Systems, Inc. and Ing. C. Olivetti & Company, S.p.A.

InterNetWare

A World-Wide Web server currently named InterNetWare is due early next year. The server supports both IPX and TCP/IP networks, will run on NetWare SMP and be integrated with NDS (*NW*, July 31, page 1).

Later versions will let users browse the NDS directory as if it were a Web document and let them link to NDS objects, including applications and documents.

A follow-on version will support a technology to let users wrap documents in a secure container for sale over the Internet. Customers accessing wrapped documents would launch a transaction that would check the user's accounting information, and automatically bill for the information.

NetWare Connect Services

The first version of this public IPX network will be generally available during the first quarter of 1996 from AT&T, with European and Asian carriers to offer the service in 1997. Novell will position NetWare Connect Services as the preferred connecting point for intelligent devices, NetWare users looking for ready-made WANs and network services such as AT&T Network Notes. In addition, it will allow users and resellers to manage NetWare networks remotely.

Novell is embracing new standards, gussying up its electronic mail and ceding control of its router to a vendor group.

Standards

Novell, Inc. is working with Hewlett-Packard Co. to merge NetWare Directory Services (NDS) and the Open Software Foundation, Inc.'s Distributed Computing Environment. Novell will offer NDS support for X.500 specifications, including the Directory Synchronization Protocol.

The company will also build modules to synchronize information in NDS with the address books of Lotus Development Corp.'s cc:Mail and Lotus Notes.

GroupWise XTD

The next version of Novell's GroupWise E-mail package will keep its current scheduling and document management capabilities, and it will gain workflow capabilities, discussion databases, manageability via Simple Network Management Protocol, integration with NDS, forms and document management, Internet access and voice mail integration (*NW*, May 29, page 1).

In 1997, it will get better security, support for electronic commerce, and will be integrated with the Green River version of NetWare as a messaging service.

Good-bye MPR

Novell will continue to partner with other companies in areas in which it is a weak competitor, such as in the router market. Later this year, the company will form a consortium of router vendors that will map out the development direction of Novell's Multiprotocol Router (MPR), the software-only router it pitches as a way to connect NetWare WANs.

Novell will then license MPR to router vendors, which will add it to their own products so they will be able to handle Novell nets more efficiently. The firm will eventually stop selling MPR except to OEMs, said Tom Steding, vice president and general manager of Novell's Network Infrastructure Division.

The company will then add some routing features, such as LAN-to-LAN connectivity, to its NetWare Connect remote connectivity product, Steding said.

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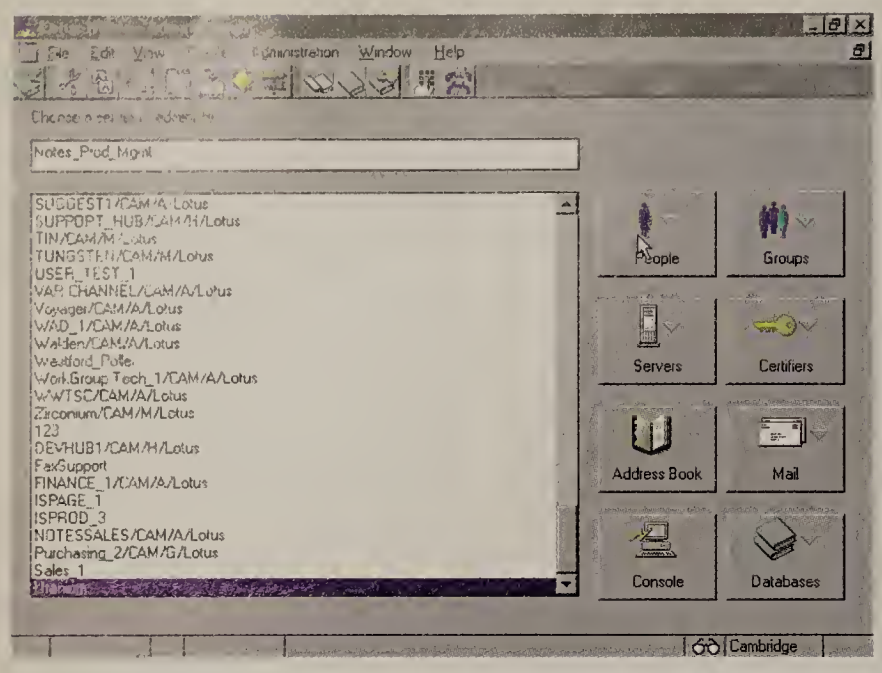


The Administrative Control Panel *manages users and tracks message traffic.*

Notes 4.0 promises to be better at being bigger

By Doug Barney
Atlanta

Lotus Development Corp. is making big promises for its upcoming Notes Release 4.0, including the claim that it is 10 times more scalable than today's Notes and significantly easier to manage.

Notes 4.0 gains its scalability — a longtime Notes bugaboo — through increased support for multiprocessing systems (processor support grows from two to six) and by being recast as a 32-bit multithreading application. The result is the ability to handle 1,000 simultaneous users, compared to today's range of 100 to 200 users per server.

Such scalability has long been sought by users. Although some Notes sites have grown to tens of thousands of users, this has been with some difficulty. Since Notes relies on the replication or copying of data and the distribution of that information, it is very resource-intensive.

Those looking to approximate Lotus' claimed gains must first install the software on higher performance multiprocessing systems, according to Lotus officials.

Making the big move

This move, according to Lotus, is already occuring. "Customers are going towards large server platforms, such as multiprocessing systems. They want to reduce the number of moving parts in their net," said Tim Dempsey, director of Notes marketing for Lotus.

Dempsey recommends taking a careful look at the overall server environment when planning for Notes 4.0. "The long-term strategy should be to design your distributed client/server hardware environment around [symmetrical multiprocessing] systems," he said. "If you do that, Notes can deliver the rest."

Lotus also touted the administrative capabilities of Release 4.0. For instance, administrators can delegate certain tasks, such as mail routing, to specialists. Managers can also replicate changes to one server out to a host of others and keep a record of all the changes.

Lotus continues to stick to its year-end ship date for Notes 4.0 and will significantly broaden its beta program in the next several weeks, officials said.

Finally, Lotus claimed it will boost dial-up performance with a Notes 4.0 rewrite of the asynchronous protocol, which will move larger packets of data. ■

Lotus airs Notes-to-database integration tool

By Barb Cole and Annmarie Timmins
Cambridge, Mass.

Lotus Development Corp. delighted users but irritated some business partners last week with the introduction of a tool for moving data between relational databases and Notes.

NotesPump addresses the growing demand for tools that can bind unstructured Notes data with structured relational data.

"I wouldn't mind having a product right now" for moving order and pricing information stored in Oracle Corp. databases into Notes, said Neal David, director of marketing information systems at Waters Corp., a Milford, Mass., maker of scientific equipment. He is using Trinzic Corp.'s InfoPump to move information from a relational database into Notes but said, "It's a pain because I have to write server scripts to do it."

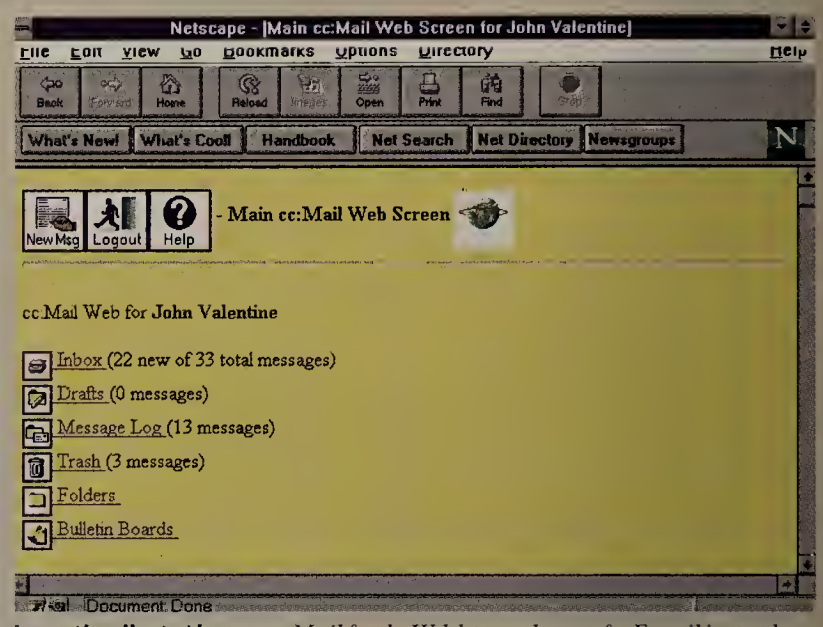
In contrast to the similarly named InfoPump and other tools, NotesPump can be managed from a single Notes client. It is also integrated with Lotus' groupware offering, providing a feature to notify a Notes administrator of the status of NotesPump operations via electronic mail.

NotesPump supports direct transfers and data replication between Notes and relational systems. It can also poll the database for specific conditions to initiate transfers. In its initial release, expected next month, NotesPump will support IBM DB2, Oracle Corp. Oracle7, Sybase, Inc. System 10 and Microsoft Corp. Open Database Connectivity (ODBC)-compliant databases. By the first quarter of 1996, Lotus will publish APIs for building links to other databases.

While users reacted favorably to the product announcement, Lotus business partners were surprised to learn of NotesPump when Lotus briefed them on it under nondisclosure agreements a few weeks ago. Some questioned why Lotus wanted in on a market that has no shortage of products.

"It's very interesting that in a market where there are many different data integration products,

See **Notes,** *page 14*



Leave the client at home: *cc:Mail for the Web lets you browse for E-mail instead.*

More from Lotus: X.500 and the Web

The Lotus Development Corp. public relations machine was busy last week. Besides announcing new Network Notes pricing and a Notes data access tool, the company made a foray into enterprisewide directories and added electronic mail access via the Internet.

Those products are:

■ Lotus Pages, a set of X.500 add-ons for the Lotus Messaging Switch (formerly SoftSwitch, Inc.'s EMX) that provide a single point of access for multiple directories and can distribute X.500-based information. Currently in beta, the suite is due in the first quarter of next year.

■ Lotus cc:Mail for the World-Wide Web Release 1.0 (*NW,* Sept. 4, page 1), a tool that allows for the sending and receiving of E-mail from any standard Web browser. The product, set to ship within 90 days, will cost $195 for the server component and about $20 per end-user license.

By Doug Barney

Tivoli, Intel unite on enterprise PC management offerings

By Jim Duffy
Austin, Texas

Tivoli Systems, Inc. and Intel Corp. last week disclosed that they have been working together over the past year to meld their respective systems management products.

The union of the Tivoli Management Environment (TME) and Intel's LANDesk desktop management product will for the first time provide enterprise-scale control of distributed Intel-based systems running Windows NT, Unix and PC LAN operating systems, the companies said. The alliance is also intended to close the gap between tools for managing enterprise nets and those for managing PC LANs, reducing the cost and complexity of overseeing distributed systems.

TME is an enterprise system management offering that until now was mostly focused on Unix workstations and servers. Intel's LANDesk software performs configuration management of PCs and servers, and software distribution and installation.

"Tivoli's effort will result in a product that will be able to work with any LANDesk [agent] on a distributed system," said Paul Mason, director of enterprise systems management for International Data Corp. in Framingham, Mass. Customers will still be able to use LANDesk at the departmental level while choosing whether to feed data to a central TME console, he said.

The Intel-Tivoli union positions the companies more favorably against Microsoft Corp. and its Systems Management Server, which does not scale as well as the LANDesk-TME system, Mason said. The combo also looks good next to Computer Associates International, Inc.'s systems management offerings, which he said are less modular.

Under Tivoli's agreement with Intel, Tivoli has licensed LANDesk Management Suite discovery agents, which scan hardware and software configurations on PCs and servers, then report that information in a Desktop Management Task Force-compliant format. This functionality will be a component of a forthcoming inventory product from Tivoli.

Also, Tivoli has licensed LANDesk technology to enable large-scale distribution and installation of software to PCs. This will be incorporated into the company's Tivoli/Courier software distribution product.

The first wave of new products from this alliance, including TME on Windows NT, will be displayed at Comdex next month and delivered by year-end.

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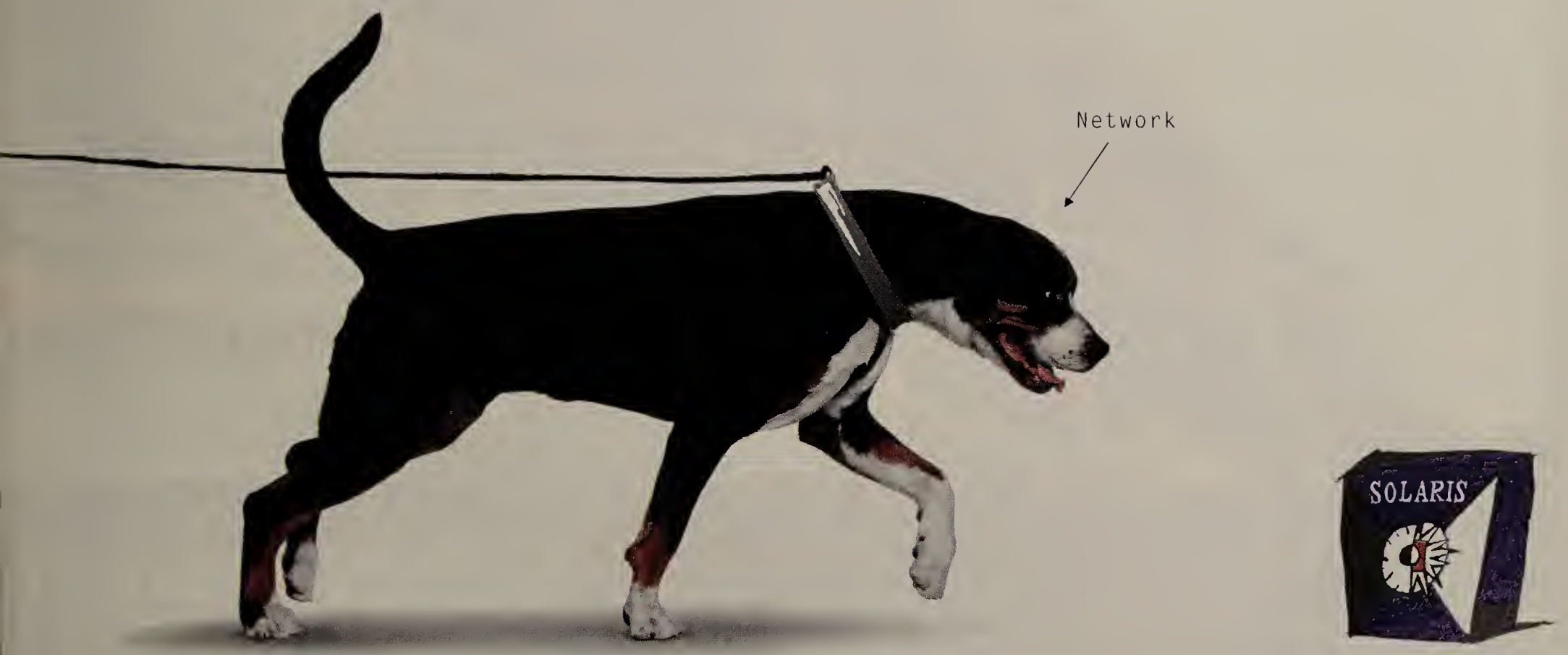

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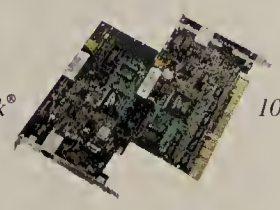
Fast EtherLink®  *10/100 Adapters*

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Network Notes: At what price will users buy in?

By Joanie Wexler
Atlanta

In the spirit of making pricing — and thus purchasing decisions — simpler for users, AT&T last week dramatically reshaped the way it charges for its Network Notes groupware service.

The move, however, begs the key question: Even if the price is right, are users culturally ready to allow an outsider to handle the care and feeding of their applications?

The answer, at least in some cases, is yes. "AT&T's Network Notes pricing is certainly low enough to be interesting and for us to evaluate it at some point," said Ralph Sampson, director of client/server and network systems at financial services firm McKesson Corp. in San Francisco.

McKesson had actually approached AT&T about the service six months after the original March 1994 Network Notes announcement. Sampson was interested in AT&T supporting a new Notes-based sales automation management application, but AT&T simply did not have the service ready in time to hit the company's deployment schedule, he said. Instead, McKesson began installing its own servers.

Network Notes was initially expected to go commercial last January, but it ran about eight months late before finally being launched in August.

Once the service was out, certain pricing flaws became apparent. In response, AT&T pared down what was formerly several pages of complex variables and came up with the following basic formula: Customers who opt to dial a local phone number for access to AT&T's Notes server farm pay $39 per endpoint per month for up to two hours of use, then $10 per hour. If they sign up this year, customers get $6 per hour off for usage beyond the two hours (see graphic). Each customer also pays a $2,500 service management fee.

Price, in fact, could help push customers toward accepting the idea of relinquishing application server control to a carrier or other third party.

"We're trying to make the service so cost-effective people can't resist it," said Gary Hickox, AT&T applications and imaging service vice president.

Unlike for McKesson, the timing of Network Notes was good for First Albany Corp. The brokerage, which recently launched the service among 22 sites, said its price analysis revealed it is at least 20% less expensive for AT&T to be maintaining its Notes servers than for the firm to invest in its own equipment and staffing.

That figure jibes with the 15% to 25% AT&T said users should save when it officially launched commercial Network Notes service (*NW*, Aug. 14, page 15).

Helen O'Connor, vice president and director of telecommunications at First Albany, described her job as using "telecom for the betterment of the bottom line." With the bottom line in mind, O'Connor bought into the AT&T pitch. "Why add to it for management and equipment when someone else who has been in the [communications] business 150 years can do it?" she asked.

O'Connor said she is relieved, though, that AT&T simplified its pricing last week. The formula was "initially too complex, even for those of us who spend half our lives on pricing," she said.

Simpler pricing structures, in fact, are turning into a key competitive edge in many carrier services (see story, page 17).

While a few pioneers have leapt at services like Network Notes, others have resisted the carrier-hosted application concept because their corporate networks are not yet mature enough.

The telecommunications director at a large Midwestern catalog retailing company, an AT&T shop, said his firm "has bigger battles to fight at the moment." His firm is at the stage of standardizing on LAN application platforms corporatewide.

The user, who asked not to be identified, also said that philosophically, his company "is being pulled in two directions" about retaining control of the network vs. gaining the advantages of outsourcing.

Other customers just do not believe carriers are up to the job yet. "I know these companies too well on a day-to-day basis to think they could do an adequate job. They have enough trouble just keeping their networks up without taking on all this value-added," said a network operations manager at a Southern financial services company who requested anonymity and uses both AT&T and MCI Communications Corp. services.

Many users still cite security concerns about storing their data on a public server that is shared with other customers. This is keeping them from trusting their application servers to a third party.

And McKesson's Sampson said he worries whether a carrier would be able to manage McKesson servers to hit the firm's strict, near-100% network availability goal. ■

NetworkWorld Fusion

For more info on this story, point your browser at http://www.nwfusion.com. After you log in, select News+ and then WANs and Internetworking.

Simple math

Network Notes costs

Access method	Monthly usage fee	Hourly usage fee after first 2 hours	Introductory discount
Local dial access	$39/endpoint*	$10/endpoint	-$6/hour
950 dial	$39/endpoint	$12/endpoint	-$6/hour
800 dial	$39/endpoint	$13.50/endpoint	-$6/hour
Frame relay (56K bit/sec dedicated)	$360/site	NA	NA

* An endpoint is a workstation or server allowing one or more users access to the Notes service.

Note: The monthly management fee is $2,500 for the above access methods.

NA = Not applicable

AT&T enhances Network Notes service

Besides tweaking its pricing structure, AT&T last week also made some enhancements to its Network Notes service.

The service now supports additional platforms: Macintosh clients; Novell, Inc. servers; Windows NT clients and servers; and Unix clients and servers running Hewlett-Packard Co., Sun Microsystems, Inc., The Santa Cruz Operation, Inc. and IBM Unix versions.

AT&T is also providing an on-line directory of Network Notes users and has increased the number of users who can simultaneously dial a server from 24 to 32.

In October, AT&T will support PPP, allowing as many as 100 PPP users to simultaneously access a server. PPP in general lets users access multiple servers at the same time without hanging up and redialing.

Notes

Continued from page 10

Lotus would decide to ship another one," said Audrey Augun, vice president of marketing at Percussion Software, Inc.

Notes-to-relational database tools

Vendor	Product
Brainstorm Technology	DataLink
Casahl Technology	Replic-Action
Information Builders	EDA/SQL Copy Manager for Notes
Percussion	Notrix Composer
Trinzic	InfoPump

"Why don't they do things that the business partners can't do, that only Lotus can do, like extending the printing capabilities [of Notes] and enhancing the graphical user interface?"

Percussion's Notrix Composer, which replicates data between Notes databases and ODBC-compliant data sources, is among the products that NotesPump will compete against. Augun is confident that Percussion's offering is stronger, however, noting that a new release of Notrix Composer will address data integrity issues that NotesPump will not tackle when first released.

Tim Dempsey, director of marketing at Lotus, said the driving force behind NotesPump was customer demand.

He acknowledged that there are several players with more mature offerings in this space and said Lotus "will make sure prospects are aware of these products." In fact, NotesPump's $7,995 price tag is designed to "leave some headroom for partners' products," Dempsey said.

David Marshak, an analyst with the Patricia Seybold Group, Inc. in Boston, said Lotus' relationship with its Notes business partners is a touchy subject.

"It's a question of serving the needs of the Notes customers and nurturing the needs of the Notes industry," he said.

NotesPump answers the needs of customers, but it is detrimental to a business partner, and it could hurt the Notes industry as a whole, he added.

NotesPump answers the needs of customers, but it is detrimental to a business partner, and it could hurt the Notes industry as a whole.

By the time Lotus publicly unveiled NotesPump, most business partners were downplaying their irritation and were instead looking for ways to distinguish their product from Lotus'.

Ed Vesely, director of marketing for data warehouse products at Trinzic, said InfoPump is more open than NotesPump and is designed to be the backbone for moving data from several places into a data warehouse. NotesPump, on the other hand, focuses on its integration with the Notes platform.

Flattery helps

Linda Wong, vice president of technology at Casahl Technology, Inc., which makes a data replication and workflow tool for Notes and relational databases, said she is flattered that Lotus would come out with a product so similar to Casahl's.

But Wong said NotesPump does not offer the update conflict detection and resolution features or the workflow triggering mechanism that her company's Replic-Action does.

Brainstorm Technology, Inc. makes an integration tool called DataLink that exchanges data between Notes databases and relational ones. Mitchell Liu, Brainstorm's chief technology officer, said he sees the two products as complementary, not competitive.

DataLink is primarily a workgroup product, while NotesPump is aimed at the enterprise, Liu said. Future releases of Brainstorm's server product, which competes more directly with NotesPump, will likely take advantage of the open APIs Lotus is making available, he said.

The company's goal is to offer a DataLink interface to the NotesPump back end.

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2. ☐ 50 - 99
3. ☐ 20 - 49
4. ☐ 10 - 19
5. ☐ 2 - 9
6. ☐ 1
7. ☐ None

4 What is your scope and involvement in purchasing decisions for network products & services for your enterprise?

A. SCOPE (check one only)
1. ☐ Corporate/Enterprise
2. ☐ Department
3. ☐ None

B. INVOLVEMENT (check all that apply)
1. ☐ Recommend/Specify
2. ☐ Approve
3. ☐ Evaluate
4. ☐ Determine the need
5. ☐ None

5 Check ALL that apply in Columns A and B:

A. I am involved in the purchase of the following products/services:
B. I plan to purchase the following products/services:

A	B	
❑ 100	❑	**LOCAL-AREA NETWORKS**
☐ 01.	☐	Local-Area Networks
☐ 02.	☐	Network Op. Sys. Software
☐ 03.	☐	LAN Storage/Backup
☐ 04.	☐	Optical LAN Storage/Backup
☐ 05.	☐	Disk LAN Storage/Backup
☐ 06.	☐	Tape LAN Storage/Backup
☐ 07.	☐	RAID LAN Storage/Backup
☐ 08.	☐	Network Test/Diagnostic Tools
☐ 09.	☐	Cables, Connectors, Baluns
☐ 10.	☐	UPS
☐ 11.	☐	Network Interface Cards
☐ 12.	☐	Peer-to-Peer LANs
☐ 13.	☐	SNMP Network Management
☐ 14.	☐	ATM Switches
☐ 15.	☐	Token-Ring Switches
☐ 16.	☐	Ethernet Switches
☐ 17.	☐	Remote LAN Access/Communications Servers
☐ 18.	☐	Superservers
☐ 19.	☐	File/Application Servers
☐ 20.	☐	Print Servers
❑ 101	❑	**INTERNETWORKING**
☐ 21.	☐	Bridges
☐ 22.	☐	Routers
☐ 23.	☐	Bridge/Router
☐ 24.	☐	Gateways
☐ 25.	☐	Intelligent Hubs/Stackables
❑ 102	❑	**COMPUTERS/PERIPHERALS**
☐ 26.	☐	Laptops/Notebooks/Sub-Notebooks
☐ 27.	☐	Micros/PCs
☐ 28.	☐	Minis
☐ 29.	☐	Mainframes
☐ 30.	☐	Workstations
☐ 31.	☐	Terminals
☐ 32.	☐	Printers
☐ 33.	☐	Cluster Controllers
☐ 34.	☐	Monitors
☐ 35.	☐	Fax/Modem Boards
❑ 103	❑	**REMOTE/WIRELESS COMPUTING**
☐ 36.	☐	PDAs
☐ 37.	☐	PCMCIA Devices
☐ 38.	☐	Wireless Data Services
☐ 39.	☐	Wireless Data Equipment
☐ 40.	☐	Wireless LANs
☐ 41.	☐	Cellular Equipment & Services
❑ 104	❑	**INTERNET/ELECTRONIC COMMERCE**
☐ 42.	☐	Internet Access Providers
☐ 43.	☐	Firewalls
☐ 44.	☐	Web Servers/Browsers
☐ 45.	☐	Internet Software Tools
❑ 105	❑	**SOFTWARE/APPLICATIONS**
☐ 46.	☐	Network Management
☐ 47.	☐	Systems Management
☐ 48.	☐	Security
☐ 49.	☐	Communications Software
☐ 50.	☐	Terminal Emulation
☐ 51.	☐	Word Processing
☐ 52.	☐	Operating Systems
☐ 53.	☐	Client/Server Applications Development
☐ 54.	☐	Database Management/RDBMS
☐ 55.	☐	Spreadsheet
☐ 56.	☐	Groupware
☐ 57.	☐	EDI
☐ 58.	☐	E-mail
☐ 59.	☐	Windows/Graphical User Interface
☐ 60.	☐	Multimedia
☐ 61.	☐	Graphics/DTP
☐ 62.	☐	Remote Access
☐ 63.	☐	Imaging
☐ 64.	☐	Suites
☐ 65.	☐	Middleware
☐ 66.	☐	Document Management
☐ 67.	☐	Database Server
☐ 68.	☐	Site Metering Tools
☐ 69.	☐	Computer-Integrated Telephony (CIT)
❑ 106	❑	**WIDE-AREA NETWORK EQUIPMENT & SERVICES**
☐ 70.	☐	Frame Relay Equip./Services
☐ 71.	☐	Modems
☐ 72.	☐	FT-1/T-1/T-3 Multiplexers
☐ 73.	☐	FT-1/T-1/T-3 Services
☐ 74.	☐	SONET
☐ 75.	☐	Inverse Multiplexers
☐ 76.	☐	SMDS
☐ 77.	☐	Asynchronous Transfer Mode
☐ 78.	☐	Diagnostic/Test Equipment
☐ 79.	☐	DSU/CSU
☐ 80.	☐	VSAT/Satellite
☐ 81.	☐	ISDN Equipment & Services
☐ 82.	☐	PBXs
☐ 83.	☐	Voice Mail/Response
☐ 84.	☐	Videoconferencing
☐ 85.	☐	Leased Lines
☐ 86.	☐	Switched Data
☐ 87.	☐	E-mail/On-line Services
☐ 88.	☐	800/900/MTS Services
☐ 89.	☐	Virtual Networks
☐ 90.	☐	Outsourcing/Systems Integration Services
☐ 91.	☐	Education/Training Services
☐ 92.	☐	None of the above (1-91)

6 What is the total number of LANs, workstations/nodes at this location/ in your organization?

	At this location: LANs	At this location: Workstations/ Nodes	Entire organization: LANs	Entire organization: Workstations/ Nodes
1.	☐ 5,000+	☐	☐ 5,000+	☐
2.	☐ 1,000 - 4,999	☐	☐ 1,000 - 4,999	☐
3.	☐ 100 - 999	☐	☐ 100 - 999	☐
4.	☐ 50 - 99	☐	☐ 50 - 99	☐
5.	☐ 10 - 49	☐	☐ 10 - 49	☐
6.	☐ 1 - 9	☐	☐ 1 - 9	☐

7 Check ALL that apply in Columns A and B:

A. The following network platforms are currently installed:
B. The following network platforms are planned for purchase:

A	B	
❑ 55	❑	**NETWORK ARCHITECTURES**
☐ 01.	☐	SNA
☐ 02.	☐	DECnet
☐ 03.	☐	TCP/IP
☐ 04.	☐	Novell IPX/SPX
☐ 05.	☐	APPC/APPN/LU 6.2
☐ 06.	☐	NETBIOS
☐ 07.	☐	AppleTalk
☐ 08.	☐	NFS
☐ 09.	☐	Other *(please specify)*_____
❑ 56	❑	**NETWORK OPERATING SYSTEM**
☐ 10.	☐	Microsoft (LAN Manager)
☐ 11.	☐	Novell (NetWare 2.X, 3.X)
☐ 12.	☐	Novell (NetWare 4.X)
☐ 13.	☐	Windows NT
☐ 14.	☐	Windows NT/Advanced Server
☐ 15.	☐	LocalTalk (AppleTalk)
☐ 16.	☐	Banyan (VINES)
☐ 17.	☐	IBM (LAN Server)
☐ 18.	☐	IBM (PC LAN Program)
☐ 19.	☐	Artisoft (LANtastic)
☐ 20.	☐	Digital (Pathworks)
☐ 21.	☐	Other *(please specify)*_____
❑ 57	❑	**LAN ENVIRONMENT**
☐ 22.	☐	4M Token Ring
☐ 23.	☐	16M Token Ring
☐ 24.	☐	Ethernet
☐ 25.	☐	100M Ethernet
☐ 26.	☐	StarLAN
☐ 27.	☐	FDDI
☐ 28.	☐	LocalTalk
☐ 29.	☐	10Base-T
☐ 30.	☐	ATM
☐ 31.	☐	Other *(please specify)*_____
❑ 58	❑	**COMPUTER OPERATING SYSTEM**
☐ 32.	☐	DOS
☐ 33.	☐	Unix/Xenix/AIX
☐ 34.	☐	OS/2
☐ 35.	☐	OS/2 Warp
☐ 36.	☐	IBM MVS
☐ 37.	☐	IBM VM
☐ 38.	☐	Digital VMS
☐ 39.	☐	Macintosh
☐ 40.	☐	Windows
☐ 41.	☐	Windows 95
☐ 42.	☐	X Window System
☐ 43.	☐	Solaris
☐ 44.	☐	Other *(please specify)*_____
☐ 45.	☐	None of the above (1-44)

8 For which areas outside of North America do you have purchase influence? (check all that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East
6. ☐ None

9 Do you have or plan to install client/server networks? ☐ Yes ☐ No

10 Which of the following hardware platforms are installed/planned in your company? (check all that apply)

	Mainframes A – Installed	Mainframes B – Planned		Minis C – Installed	Minis D – Planned
1.	☐ IBM	☐	1.	☐ IBM	☐
2.	☐ Amdahl	☐	2.	☐ Digital	☐
3.	☐ Cray	☐	3.	☐ Tandem	☐
4.	☐ Hitachi	☐	4.	☐ Unisys	☐
5.	☐ Unisys	☐	5.	☐ AT&T GIS	☐
			6.	☐ HP	☐
			7.	☐ Data General	☐

Which of the following do you have installed/planned: (USE NUMBERS ONLY)

	At this location: E – Servers	At this location: F – Clients/Nodes	Entire organization: G – Servers	Entire organization: H – Clients/Nodes
1. Power PC				
2. Power Macintosh				
3. Macintosh (Other)				
4. Pentium-based				
5. 80486-based				
6. 80386-based				
7. 80286-based				
8. RISC-based workstations				
9. Other				

11 What is the estimated value of networking equipment and services that you help specify, recommend or approve annually? (check one only)

01. ☐ $100 million or more
02. ☐ $50 million - $99.9 million
03. ☐ $25 million - $49.9 million
04. ☐ $20 million - $24.9 million
05. ☐ $10 million - $19.9 million
06. ☐ $5 million - $9.9 million
07. ☐ $1 million - $4.9 million
08. ☐ $500,000 - $999,999
09. ☐ $250,000 - $499,999
10. ☐ $249,999 or less
11. ☐ None of the above

12 Estimated gross annual revenue of your entire company/institution: (check one only)

1. ☐ $10 billion or more
2. ☐ $1 billion to $9.9 billion
3. ☐ $500 million to $999.9 million
4. ☐ $100 million to $499.9 million
5. ☐ $50 million to $99.9 million
6. ☐ $10 million to $49.9 million
7. ☐ $5 million to $9.9 million
8. ☐ $4.9 million or less
9. ☐ None of the above

13 Estimated number of employees at this location/in entire organization:

At this location:				Entire organization:			
1.	☐ Over 10,000	4.	☐ 1,000 - 2,499	1.	☐ Over 10,000	4.	☐ 1,000 - 2,499
2.	☐ 5,000 - 9,999	5.	☐ 500 - 999	2.	☐ 5,000 - 9,999	5.	☐ 500 - 999
3.	☐ 2,500 - 4,999	6.	☐ 499 or less	3.	☐ 2,500 - 4,999	6.	☐ 499 or less

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Briefs

■ *Three developers recently announced* **Telephony Service Application Program Interface (TSAPI)**-*based programs that have been certified to run on* **Siemens Rolm Communications, Inc.'s** *9751 CBX private branch exchange in conjunction with Novell, Inc. LANs.*

AnswerSoft, Inc. *launched a $225-per-seat call management and control application dubbed SoftPhone.* **Atlantis Technologies, Inc.** *rolled out Assist for automating call and messaging workflows for $200 to $1,100 per user, depending on the number of licensees. And Group PhoneWare from* **Q.SyS International** *automates call responses; it costs $1,995 for a five-user license.*

Siemens Rolm: (408) 492-2000.

■ *For a limited time, users of* **IBM's** *AIX SNA Services/6000 Version 1 can upgrade to SNA Server/6000 Version 2 for AIX or SNA Server for AIX Version 3.1 for a 35%* **discount** *off current $399 upgrade charges. Orders must be placed by Feb. 29, and installation must occur by March 29.*

IBM: (800) 426-2255.

■ **Sprint Corp.** *last week announced Resale Solutions, a set of* **voice and data options** *that give Sprint resellers and their end-user customers independent prices and service terms not affected by unfavorable changes in regular tariffs.*

"Sprint is offering reseller customers simplicity and freedom from the effects of retail product changes," said Leo Walsh, general manager of Sprint's Diversified Brands Group.

■ **MCI Communications Corp.** *has become the first carrier to place an* **OC-192 Synchronous Optical Network (SONET) transmission system** *in commercial service. The 125-mile stretch of MCI's network from Dallas to Longview, Texas, can carry 10G bit/sec of traffic, the equivalent of 1,667 channels of premium videoconferences.*

MCI streamlines frame pricing

Helps befuddled telecom budgeters by dropping mileage-sensitivity component.

By Joanie Wexler
Atlanta

To hone its strengths in the dog-eat-dog carrier battle for frame relay accounts, MCI Communications Corp. last week simplified its pricing structure by eliminating its distance-sensitivity component.

The move could lower overall monthly bills for user networks with many sites scattered over long distances.

MCI has done away with the oft-confusing variation in charges for permanent virtual circuits (PVC) caused by the mileage factor. Previously, a given PVC charge was based on bandwidth plus the distance between the two sites connected by the PVC. That PVC charge is now figured on a flat rate determined only by the bandwidth of the PVC.

Under this arrangement, customers with long hauls among most sites could make out, though users with concentrations of local or regional sites would probably see no price difference.

Aside from potential savings, the new plan also promises a simpler pricing formula — probably a welcome relief to users who have struggled to make comparisons of MCI's complex pricing with other alternatives, said Charles Baker, president of Telecommunications Engineering, Inc., a consulting firm in Dallas.

Baker added that the move is a natural and fair one for customers because the near-ubiquitous presence of fiber in long-distance trunks has "virtually caused distance sensitivity to drop out of the cost of providing service," he said.

MCI has traditionally offered more options in its frame relay pricing than any of its competitors. This has been a mixed blessing in that "our matrix has been too complicated for customers to come up with pricing easily," acknowledged Bill Callahan, MCI senior manager of broadband data marketing.

MCI is currently the only interexchange carrier to offer a usage-based option, whereby users subscribe to a minimum performance-level committed information rate (CIR), then pay by the megabyte sent — up to a price cap. This cap is set equal to what users would pay if they chose a nonusage-based, fixed-rate price for that CIR. This way, users are never price-penalized for choosing the usage-based option.

Generally, customers who choose the fixed-rate option have no chance to save money if their traffic loads are less than their chosen CIR at any time during the month. However, this option is easier for some who prefer to know exactly what they

See **MCI,** *page 20*

MORE ON-LINE

You'll find numerous resources on Network World Fusion about frame relay, including:

- **Analyses of frame relay pricing**
- **Basic frame relay info**

To access: Point your Web browser at http://www.nwfusion.com. After you log in, select News+ and then WANs and Internetworking.

NetworkWorld Fusion

'In-between' mobile nets now en route

By Joanie Wexler

A new "middle-tier" wireless networking system with more coverage than campus-based services but lacking nationwide punch will roll out next year.

This new choice is aimed at community-bound users, such as salespeople who deal exclusively with local customers, and is made possible through a little-known technology called Personal Access Communications System (PACS). PACS officially made its industry debut at the PCS '95 show last month in Orlando in the form of network infrastructure gear from several manufacturers.

Today, there are basically two levels of service. At the campus level, wireless private branch exchange and Centrex offerings have recently popped up from the likes of Bell Atlantic NYNEX Mobile; its parent, Bell Atlantic Corp.; and Pacific Bell. These are designed to keep roaming employees, within limited boundaries, productive.

In the meantime, established cellular and packet radio alternatives continue to accommodate users as they jet-set around the country.

See **Mobile nets,** *page 20*

SDSL promises T-1 bandwidth over standard telephone lines

By Tim Greene
Largo, Fla.

AT&T Paradyne, Inc. has developed technology that promises a cheaper way to offer T-1 bandwidth and do it over standard, two-wire, voice telephone lines.

The new capability, called Symmetrical Digital Subscriber Line (SDSL), is a new twist on an existing but still young technology called Asymmetric Digital Subscriber Line (ADSL). ADSL was designed to deliver video to homes over a single twisted copper pair.

That application required high downstream bandwidths but relatively low upstream bandwidths. SDSL took that concept but adjusted the data flow to mirror the capacity of four-wire T-1 lines — 1.544M bit/sec in both directions.

If adopted by carriers, the new technology could result in competition that might turn into savings for users, analysts said.

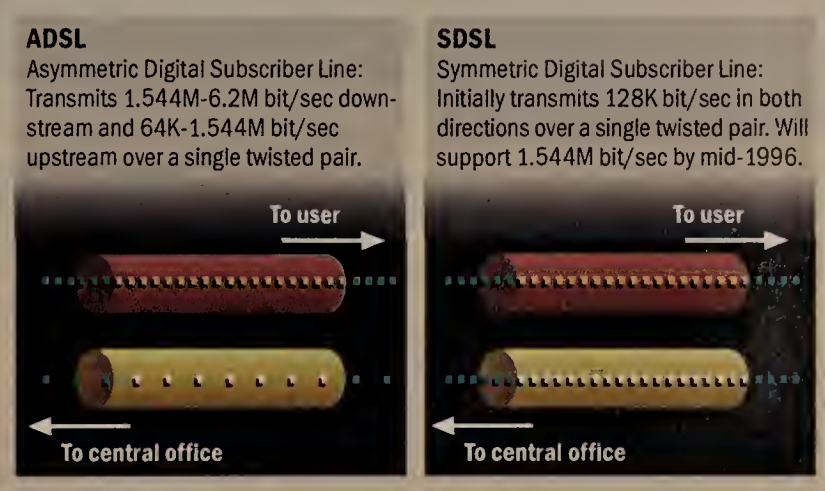
Daniel Briere, president of TeleChoice, Inc., a Verona, N.J., consulting company, said no one has built SDSL devices yet, but devices for its sister technology, ADSL, cost $1,200 to $1,400 per line. If it is used in volume, SDSL equipment could drop in price to $700, which would make it cheaper per line to install than a hybrid fiber-coaxial cable network. That would allow high-bandwidth services over the existing copper infrastructure.

Thomas Nolle, president of CIMI Corp., a technology assessment firm in Voorhees, N.J., said SDSL in combination with competition for local exchange service could bring down rates charged by carriers for what is the equivalent of a T-1 pipe.

Rules of competition being considered in federal telecommunications legislation would give competitive access providers (CAP) access to the installed copper wires now used by the

See **SDSL,** *page 22*

UNRAVELING SDSL



GRAPHIC BY SUSAN J. CHAMPENY

Want cheap data network service? Just tell them you're from France

By Tim Greene
Paris

Users with international networks that include sites in France have one more option for frame relay or X.25 carrier service: Air France.

The travel giant began selling space on its 150-node private network in June.

With more than a dozen nodes in the U.S., it can already link international users that have sites in France — where Air France has authority to function as a carrier — to any other point on the network.

It does not have carrier status in the U.S. that would allow it to offer service exclusively among its U.S. nodes, but it plans to enter the U.S. market next year, according to Philippe Balin, Air France's telecommunications director.

The network can support frame relay service from all its nodes at speeds from 9.6K to 64K bit/sec.

In preparation for more traffic on its backbone, Air France has installed six StrataCom, Inc. IGX Asynchronous Transfer Mode switches and can send at speeds from 64K to 2M bit/sec between those nodes. The airline has plans to add 24 more switches by the end of the year. "That depends on how much business we get," Balin said.

The cell technology in the StrataCom backbone switches will reduce the network cost of leased lines, he said, and the packet and cell networks complement one another.

Air France built its own data packet network based on products from Ascom Timeplex, Inc. and Northern Telecom, Inc. in 1990. The airline is replacing the Ascom Timeplex network, and payback on the StrataCom network is projected at two years.

Other airlines chose to use SITA, the international network shared by many airlines, but Balin said that option was 30% to 40% more expensive than the solution his firm chose.

So what's the price?

Air France pricing in France is 15% less than for France Telecom's data services, Balin claimed, but pricing for the U.S. market has not been determined. "We plan to take 10% of the French data communication market within three years," he said.

According to Balin, the choice to set up a private network with leased lines from AT&T in the U.S. was made because it was 35% less expensive than other alternatives Air France considered, including service offerings from BT Tymnet, Inc. When the time comes early next year to figure out U.S. pricing, he expects that difference to be reflected in the rates.

"Don't forget, the comparison was made in 1991. Certainly it is time to update the comparison," he said.

An analyst was skeptical, however.

"You need to pay for a tail circuit, and the potential cost savings is diminished when you do this," said Kathy Elsayed, vice president of information resources at Lynx Technologies, Inc., a Fairfield, N.J., international telephony consulting firm. Many international carriers will pay for the local link when you buy service from them, she added.

In the U.S., the Air France network nodes are located in Boston, Chicago, Washington, New York, San Francisco, Los Angeles, Houston, Atlanta, Miami and Philadelphia.

Although Air France leases lines from local PTTs, Unisource, AT&T or other carriers, users of the Air France network deal only with Air France if there is a problem.

"Never does the customer have to call the PTT to say the local line is down," Balin said. ■

IDEA links remote users to AS/400s

By Michael Cooney
Billerica, Mass.

IDEA last week announced a new family of controllers designed to help those looking for a quick and easy way to link remote end users with IBM Application System/400 resources.

The i-Series controllers are entry-level communications devices aimed at branch offices that need host connectivity but not the full-blown networking capabilities of IDEA's larger controller, the Concert series.

"As a firm grows, users can migrate to the Concert with a software upgrade to the i-Series."

Rohit Mehra

In fact, the i-Series boxes are field-upgradable to IDEA's more advanced Concert controller line.

"As a firm grows, users can migrate to the Concert with a software upgrade to the i-Series," said Rohit Mehra, an IDEA product manager.

The i-Series family comprises three controllers. The Model i10200 is the smallest, supporting as many as eight twinaxial terminals and a single 128K bit/sec Synchronous Data Link Control or X.25 link to the AS/400. The middle-tier box, the i10300, supports 16, 28 or 56 twinaxial devices as well as SDLC, X.26 or token-ring connectivity with the AS/400. The high-end Model i10700 supports between 28 and 128 twinaxial devices and the same AS/400 connectivity as the i10300.

All of the i-Series boxes provide IBM 5294 and 5394 AS/400 controller compatibility at a significantly lower price than the IBM controllers. For example, an IBM 5494 that supports token-ring AS/400 links costs around $6,000. A similarly configured i-Series would cost about $2,000, the firm claimed.

The i-Series boxes support links to IBM's pre-AS/400 mid-range boxes, the System/36 and S/38.

"All three models are essentially plug and play; there are no configuration diskettes or anything else," Mehra explained. "An Auto-Sensing feature lets users plug in terminals and printers, which automatically register to the host."

The i-Series boxes are currently available and range in price from $1,995 to $4,295.

✆IDEA: (800) 257-5027.

Axon unleashes RMON2-type probe and software

Flexiprobe 6000, Traffix Manager track end-to-end conversations through enterprise nets.

By Jim Duffy
Newton, Mass.

Axon Networks, Inc. has brought out two products designed to enable users to monitor and analyze end-to-end traffic in enterprisewide client/server nets.

The products, called Flexiprobe 6000 and Traffix Manager, are based on management concepts being defined as part of the emerging Remote Monitoring-2 (RMON2) standard. RMON2 will allow network managers to collect network and application statistics from network devices in order to analyze traffic patterns and plan for network growth or reconfiguration.

"[RMON2] gives us the ability to go in and monitor what part of network utilization is made up of what [type of traffic]," said Kevin Morris, lead systems software specialist at Northern Indiana Public Service Co. in Hammond, Ind. "That's very valuable information because our network is doing nothing but growing, and our staff is doing nothing but shrinking. We've had to find ways of saving time."

Axon's *Flexiprobe 6000 and Traffix Manager software provide RMON2-type analysis of enterprisewide client/server networks.*

Flexiprobe 6000 is an RMON2-type probe that monitors multiple network segments and supports multiple network media types. It is a chassis-based hardware platform with three media card slots.

Media cards for Ethernet, token-ring and FDDI LANs can be mixed and matched in the Flexiprobe 6000 according to user requirements. The cards support a varying number of ports.

Flexiprobe features an Intel Corp. i960 Reduced Instruction Set Computing processor and buffered memory for simultaneous monitoring of multiple LAN segments. Statistics gathered by Flexiprobe are delivered to a Unix workstation running Traffix Manager software.

Traffix Manager collects and correlates the statistical data to provide visualization of enterprise network traffic for performance management, trend analysis and troubleshooting. It also displays end-to-end conversations and details how client/server applications are using the network.

This enables network managers to focus on the traffic for a particular workgroup, virtual LAN, subnet or organization and then tune those networks based on application usage patterns.

The Flexiprobe 6000 with an FDDI media card will be available in the fourth quarter.

Ethernet and token-ring media cards will be available in the first quarter of 1996. A Flexiprobe 6000 with 32M bytes of memory and two eight-port Ethernet cards costs $13,200.

Pricing for a single-user license of Traffix Manager with the ability to monitor 50 RMON devices starts at $8,000.

It will be available in the fourth quarter.

✆Axon: (617) 630-9600.

BusinessBriefs

The Federal Communications Commission is expected to decide the fate of **Sprint Corp.'s** proposed alliance with France Telecom and Deutsche Telekom on Dec. 7 at the commission's final public meeting of the year.

Scott Blake Harris, chief of the FCC's International Bureau, told users attending a recent New York meeting sponsored by Swiss Telecom PTT that the FCC staff needs until then to digest new comments filed after the Sprint deal was altered following a Department of Justice decree.

The **Unispan consortium** of regional frame relay service providers, which collectively provide nationwide services, has gone global by adding a sixth member: TeleMedia International, Inc., whose net spans Europe, North America, Latin America, Asia-Pacific and Australia. The group last week also said it is evaluating Visual Networks, Inc.'s Visual Networks management infrastructure as a common monitoring platform to run across their nets.

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Mobile nets

Continued from page 17

Depending on whom you ask, PACS is either a high-speed personal communications service (PCS) alternative or a local-loop substitute. While running in the same 1.9-GHz spectrum band assigned to PCS, PACS radio subsystems are typically interconnected with the public telephone network, rather than PACS-specific switches. So PACS is likely to be only a third as expensive and much faster to deploy than some of the digital cellular infrastructures under construction, according to PACS proponents.

James Carpenter, senior vice president at PACS vendor NEC America, Inc., described the technology as a "cordless phone with more reach." He said the system, based on microcells, extends throughout a community or county and maintains land-line speed, quality and privacy.

PACS systems are being tested at US WEST, Inc. and SBC Communications, Inc. as a local-loop alternative for difficult-to-wire areas. They will also interoperate with ISDN and extend the bandwidth and intelligent capabilities of one ISDN 64K bit/sec channel to wireless users.

From that perspective, "PACS sounds appealing for our investment representatives out in the community visiting a customer" and needing local database and Internet access, said Richard Malone, the partner in charge of information systems at financial services company Edward D. Jones & Co. in St. Louis. Malone worries, however, about disappointing users who take their equipment out of coverage bounds.

Others share this concern. "We don't believe that a boundary is acceptable to a customer," said Dick Lynch, executive vice president and chief technology officer at Bell Atlantic NYNEX Mobile in Bedminster, N.J.

Instead of moving to PACS, his firm plans to resell wireless PBX systems from Motorola, Inc. for campuswide service and is building a nationwide digital cellular net to extend that nationally.

Boundaries are acceptable to some, however. Steve Green, president of consultancy S.R. Green Associates in Los Angeles, stopped by Pacific Bell's booth at the Tele-Communications Association, Inc. trade show last month in San Diego in search of a community-oriented wireless network solution. He was trying to save a medical facility client, whose campus straddles Pacific Bell and GTE Telephone Operations territory, from having to pay hefty cellular rates.

An effective solution to Green's problem is almost here. For instance, Pacific Bell launched wireless Centrex at the show, a service that would extend among a cluster of buildings. But since the Pacific Bell product manager was unsure whether the Centrex service would reach across streets into GTE territory, PACS might be a viable solution for his client. There is only one hitch: There are no services available now.

Pacific Bell is not pursuing PACS. Neither is Bell Atlantic NYNEX; instead, it is planning to link PBXs to its Code Division Multiple Access-based PCS services when they become available next January, Lynch said. Service prices will be based on zones, whereby users can choose as many as three zones with different usage rates, with the "home zone" being the least expensive. ■

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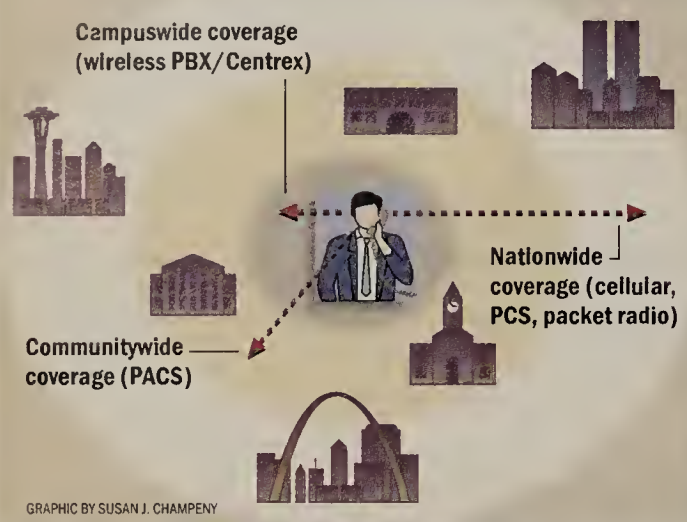

GRAPHIC BY SUSAN J. CHAMPENY

PCS begins to gel

At the PCS '95 show in Orlando last month, PCS components parts other than PACS began drifting into place.

■ **SkyTel Corp.** launched the nation's first two-way paging PCS service, dubbed SkyTel 2-Way (*NW*, Sept. 18, page 10). MCI Communications Corp. said it will begin reselling the service next month under its own networkMCI brand name.

■ **Ex Machina, Inc.** introduced Notify Pro and Notify Mobile, applications that are the first to comply with the Personal Communications Industry Association-sanctioned Telocator Data Protocol (TDP) for PCS services in the 1.9-GHz spectrum band. Ex Machina's applications allow the exchange of data files and text messages over PCS services, such as SkyTel 2-Way.

■ **Engineering & Business Systems** in Shelton, Conn., introduced the Short Messaging Server, which allows providers of PCS and cellular services to deliver "message-waiting" notification, financial data, weather reports, news headlines and advertising over their spectrum. The server delivers text messages of up to 160 characters to a mobile subscriber from external sources such as voice mail, operator terminals, electronic mail, fax or paging, the vendor said.

■ **Octel Communications Corp.** said it will incorporate AccessLine Technologies, Inc.'s One Person, One Number and other technologies into its Sierra voice processing platform to extend its wireless services beyond a campus boundary.

MCI

Continued from page 17

are going to pay per month when budgeting, noted Christine Heckart, senior broadband consultant at TeleChoice, Inc., a consulting firm in Verona, N.J.

MCI also offers a zero CIR, which is usage-based and basically free if unused. But this option, also offered by Sprint Corp., does not guarantee throughput, as each packet is marked discard-eligible and could be dropped in times of network congestion.

Another MCI pricing-related option is simplex PVCs, whereby a user can render a CIR larger in one direction than in the other if the nature of the traffic flow merits it. Other carriers also offer this (see graphic). MCI and its competitors other than Sprint also allow users to oversubscribe a PVC larger than the port speed to take advantage of spare capacity on the carrier's backbone net.

Based on the new plans, MCI's Callahan said users at the low end might see their prices reduced slightly. As before, MCI's usage-based option still carries a minimum 16K bit/sec CIR performance level, and charges for usage are capped at the corresponding fixed-rate charge for the CIR. However, the 16K bit/sec fixed-rate minimum charge has dropped from $54 to $37 per month per simplex PVC.

On average, though, the MCI customer base as a whole should see a neutral effect on pricing, he said. ■

How they charge – IXC frame relay pricing schemes

Carrier	Basic pricing structure	Pricing options
AT&T	Flat rate	Simplex PVCs, oversubscription of port connection
LDDS WorldCom	Flat rate or nonlinear*	Simplex PVCs, oversubscription of port connection
MCI	Flat rate or usage-based with price caps; **no longer mileage-sensitive**	Simplex PVCs, zero CIR, oversubscription of port connection
Sprint	Flat rate	Zero CIR

***The price of each incremental 64K bit/sec of CIR decreases as volumes increase.**

SOURCE: TELECHOICE, VERONA, N.J.

Advertisement

What is the role of flow control in ATM networks?

By Joseph Skorupa

ATM flow control is one component of a broader capability known as bandwidth management. Bandwidth management minimizes network congestion and guarantees efficient use of critical network resources such as WAN and server links.

ATM is unique in its ability to define different traffic types: constant bit rate (CBR) which is typically voice, variable bit rate (VBR) for video, and unspecified bit rate (UBR) and available bit rate (ABR) for data traffic. Each traffic type requires a different quality of service (QoS) with unique properties, like the amount of bandwidth reserved, delay tolerance, and variation.

Bandwidth management is key to the support of multiple services on ATM. It guarantees QoS for high priority, delay sensitive CBR and VBR traffic, while providing bursty UBR and ABR traffic with fair access to remaining network bandwidth. Several techniques including traffic policing, flow control, and per VC queuing are used to provide these services.

Connection admission control and dual leaky bucket traffic policing algorithms within the ATM switch ensure the integrity of CBR/VBR connections. Per VC queuing provides a unique path, or queue (and priority) for each connection, guaranteeing that each connection receives the appropriate QoS.

Flow control, per VC queuing, and intelligent buffering are used within the ATM switch to optimize the bandwidth that is available for data traffic (UBR and ABR).

Flow control detects congestion in the network and informs the sending device to slow down. To date, the ATM Forum has defined EFCI to do this, with more sophisticated methods on the horizon.

Because data traffic is bursty, large dynamically allocated buffers are essential. These buffers temporarily store traffic when multiple, simultaneous bursts cause momentary congestion.

However, large buffers are not enough. Once a buffer is nearing capacity, the ATM switch should begin to intelligently discard cells. Packet Level Discard drops entire LAN packets versus discarding random cells from many different packets. This technique maximizes packet throughput and minimizes the total number of packets that must be retransmitted.

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Start

GTE seeks pricing flexibility for government customers

By David Rohde
Washington, D.C.

Government network administrators may obtain new flexibility in negotiating with local exchange carriers (LEC) if GTE Telephone Operations succeeds in pushing a controversial proposal past the Federal Communications Commission.

The proposal, included in a tariff filing due to take effect next Monday, would for the first time allow GTE to give government agencies special rates in response to requests for proposals on T-1, T-3, digital data service and other private lines.

The proposal has drawn howls of protest from competitive access providers (CAP) and MCI Communications Corp., which claim such a procedure violates the commission's long-standing policy prohibiting dominant LECs from negotiating individual rates on standard services.

But in its filing, GTE claims that it is being eaten alive in Hawaii — where it is the dominant carrier — by a CAP named Oceanic Communications, Inc. Oceanic recently won 25 government contracts for private-line services in Hawaii by undercutting GTE's published tariffed price, GTE officials said.

"For any given RFP, any competitor can figure [GTE's] rates and simply bid a few dollars less to win the award," said Dennis Trimble, GTE's director of pricing and tariffs in Irving, Texas.

Although GTE only demonstrated the current problem in Hawaii, its proposed solution would apply to government agencies around the country. GTE is the LEC for parts of 28 states.

The controversy resembles a current fight over an attempt by SBC Communications, Inc., a regional Bell operating company, to gain RFP flexibility for all users (*NW,* April 10, page 25, and July 17, page 26).

But in the case of GTE, the matter is complicated by the fact that the FCC allows carriers to file separate rates for government vs. private-sector users, as long as all government users are charged the same amount for the same service.

In fact, there's nothing technically stopping GTE from coming up with a lower price than the published government price in response to a private-line RFP, said Don Sussman, an MCI regulatory analyst at the carrier's headquarters here.

It's just that if GTE then won the contract, it would be obligated to lower its published government price to the new, lower benchmark for government users, Sussman added.

The FCC is expected to rule on the GTE proposal this week.■

SDSL

Continued from page 17

incumbent local exchange carriers. CAPs could offer T-I-type service using SDSL at a lower price than traditional T-1, and that would work to push prices down, he said.

According to Clete Gardenhour, director of advanced transmission technologies for AT&T Paradyne, SDSL is a firmware upgrade of its existing GlobeSpan hardware that supports ADSL with speeds up to 6M bit/sec in one direction and 64K bit/sec in the other. When it becomes available in December, SDSL will support 128K bit/sec in both directions and, by mid-1996, will support full T-1.

Teleco, Inc. last month demonstrated at the TCA '95 show in San Diego a videoconference using High bit rate Digital Subscriber Line for sending and receiving 1.5M bit/sec bandwidth over two pairs of copper wires. In the first quarter of next year, the company will offer that same capability plus fractional E-1 (the European analog of T-1) over a single pair of wires, said Otto Mayes, vice president of network control at Roswell, Ga.-based Quadraplex, Inc., the firm that manufactures Teleco's videoconferencing system.

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Senior Editor Joanie Wexler contributed to this story.

Farallon looks to make Internet access simpler

By Jim Duffy
Alameda, Calif.

Farallon Computing, Inc. hopes to make the Internet cheaper and easier, and make a few bucks for itself in the process.

To meet both goals, the company has rolled out an Internet access program, Netopia, that includes an ISDN access router, a Web browser and mail client software for popular desktop operating systems, as well as support services to help users set up the new products.

"I have two words to describe it: It's nifty," said Paul Zagaeski, senior analyst at Computer Intelligence InfoCorp, Inc. in Boston.

The three new Netopia Internet routers connect Ethernet LANs to the Internet over a shared ISDN line. The Models 630 and 640 are targeted at Windows users, while the Model 440 supports Macintosh users.

All three support an integrated 128K bit/sec ISDN NT1 Basic Rate Interface. With 4-to-1 compression, WAN throughput can reach 512K bit/sec, Farallon said.

The Models 630 and 640 feature 10Base-T and attachment unit interface (AUI) Ethernet, while the 440 sports an Ethernet AUI and an Apple Computer, Inc. LocalTalk connection. The 630 and 640 route TCP/IP, while the 440 routes TCP/IP and AppleTalk.

The software, called Netopia Internet Solution Starter Kit, includes unlimited licenses of Microsoft Corp.'s Plus Web browser and electronic mail client software. It also includes a single license for Netscape Communications Corp.'s Navigator Web browser, Qualcomm, Inc.'s Eudora Lite E-mail software and Network TeleSystems, Inc.'s TCP/IP protocol stack.

The Netopia routers cost from $1,299 to $1,699, including the Netopia software. The services cost $499. All Netopia offerings will be available next month.

©Farallon: (510) 814-5000.

Farallon's guide to the Internet

Components of the Netopia line:

- **Internet routers:** 128K bit/sec ISDN access to the Internet for workgroups
- **Internet software:** Web browsers and mail clients for Windows 95, Windows 3.1 and the Macintosh
- **Internet services:** Up and Running, Guaranteed support program

INTERNETWORKING MONITOR

Internet names, part deux

It seems like only yesterday I was writing a column on the InterNIC and its policies concerning Internet domain names (Aug. 7, page 8). Needless to say, it is time to do so again.

My last column about this was in response to the InterNIC announcing a set of rules about who could have what name. This one is in response to the InterNIC announcing that domain names are no longer free.

Scott Bradner

At a certain level, one could say the InterNIC has learned very little from its experiences. The group was widely and wildly criticized in July for springing a major policy change on the Internet community without any period for comment.

They did not stick to the tradition of the Internet, the Internet Engineering Task Force and the U.S. government, which is to have an open discussion before rules and regulations are adopted.

The InterNIC failed to do this when announcing the change in the intellectual property rights procedures associated with specific domain names. And now they have done the same thing again.

They have, out of the blue, announced that people will have to pay to get permission to use domain names and keep paying every year to retain the right to continue to use them. This includes those names that have already been assigned.

This announcement caused a firestorm on various Internet mailing lists. Some people were upset about the lack of a comment period, others that the InterNIC has a monopoly in this name business or that the price quoted ($100 for each of the first two years and $50 per year after that) was too high.

In response, a number of organizations have announced that they will seek permission to assign domain names in competition with the InterNIC.

Let's talk about the last point first. Some people on the mailing list have maintained that charging $50 per year per domain name somehow will threaten the very existence of the Internet. This is silly. The idea that someone who has a domain name, which could cover hundreds or thousands of individual computers, will be somehow burdened by having to pay a bit less than $5 per month seems more than a little unlikely. It is true that one might expect that the cost could be less if good automation were used in the name registration and billing process, but in any case, it ain't a whole lot of money for the function.

The suggestion that more competition is needed is much more rational. Competition in the allocating of names could help ensure that the Internet community gets the most responsive and efficient service in this area.

But the notion of competition also has its drawbacks.

Now the main problem in assigning names is the part of the domain name space called the .com top-level domain. A top-level domain is the rightmost part of a domain name, the .edu in harvard.edu for example. The .com space, though initially mostly allocated within the U.S., is now increasing in demand elsewhere.

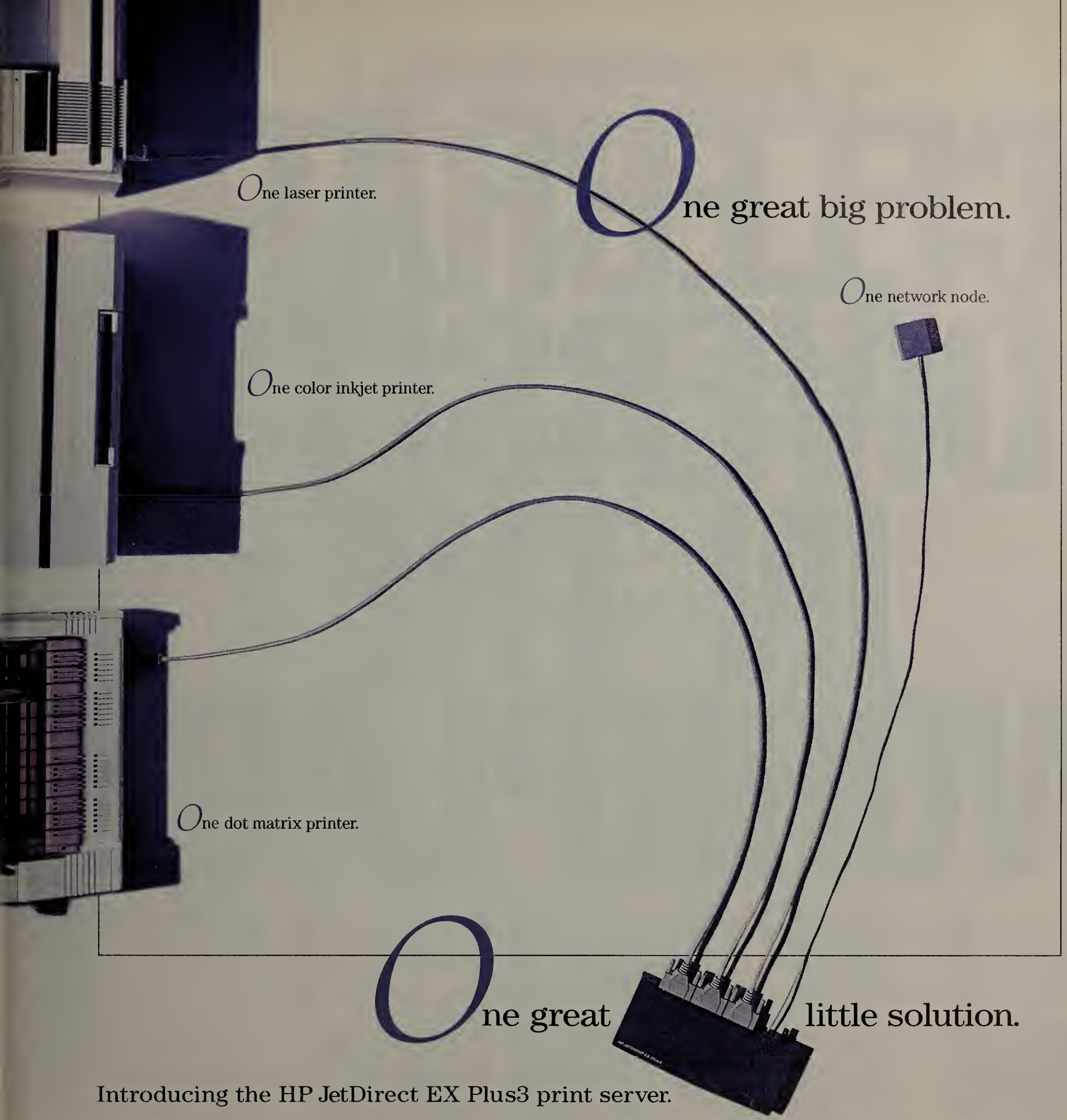
Some people now want to add additional worldwide top-level domains run by different registries to compete with the use of .com. I don't know how that would help all that much. I would expect that if, for example, a .biz top-level domain were created, all of the major companies would either register in the new domain or sue to ensure that their trademarked name was not used in the new domain. It would be very confusing to have ibm.biz be a different company than ibm.com.

For myself, I'd rather see a phaseout of the use of .com with companies moving to .com subdomain names within country-based top-level domains (ibm.com.us, for example).

I'd also like to see a way that multiple registries would be able to compete to register companies within the new subdomain; it is not a hard technical problem to solve.

Disclaimer: Harvard, even with its billion-dollar budget, is not in .com, so it does not have an opinion on this topic.

Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu. He shares this space with Daniel Briere and Christine Heckart, whose column will appear next week.



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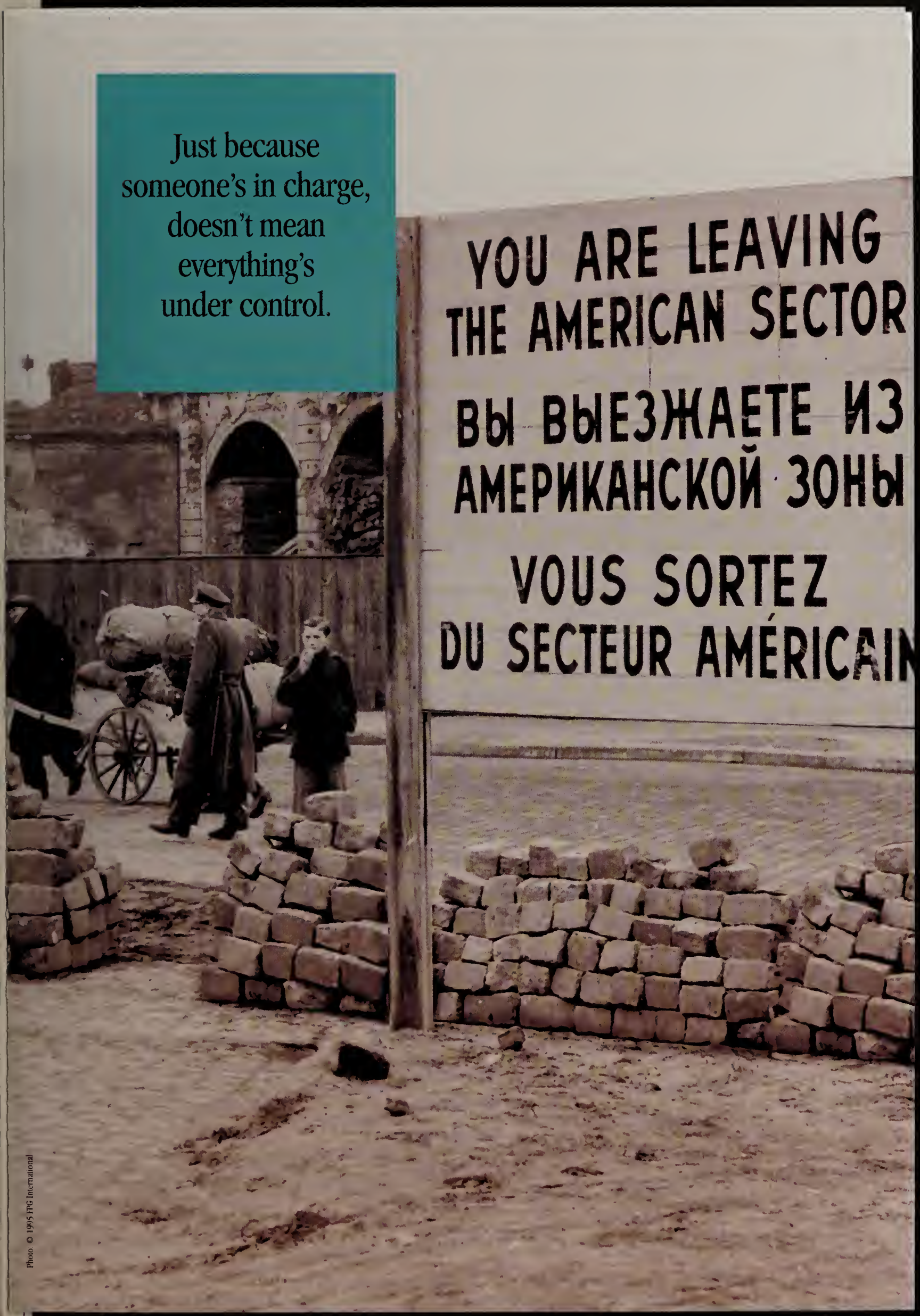

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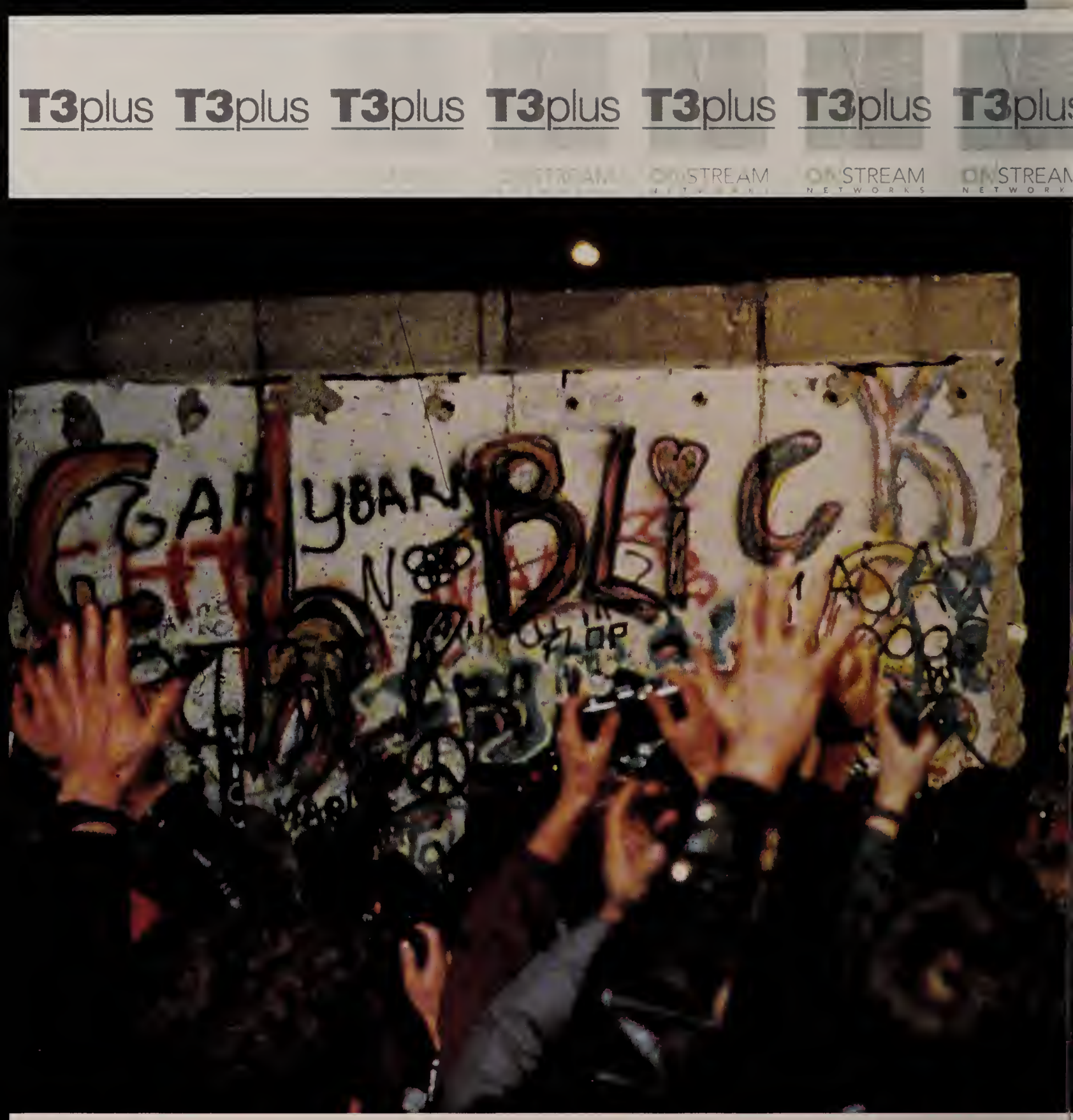

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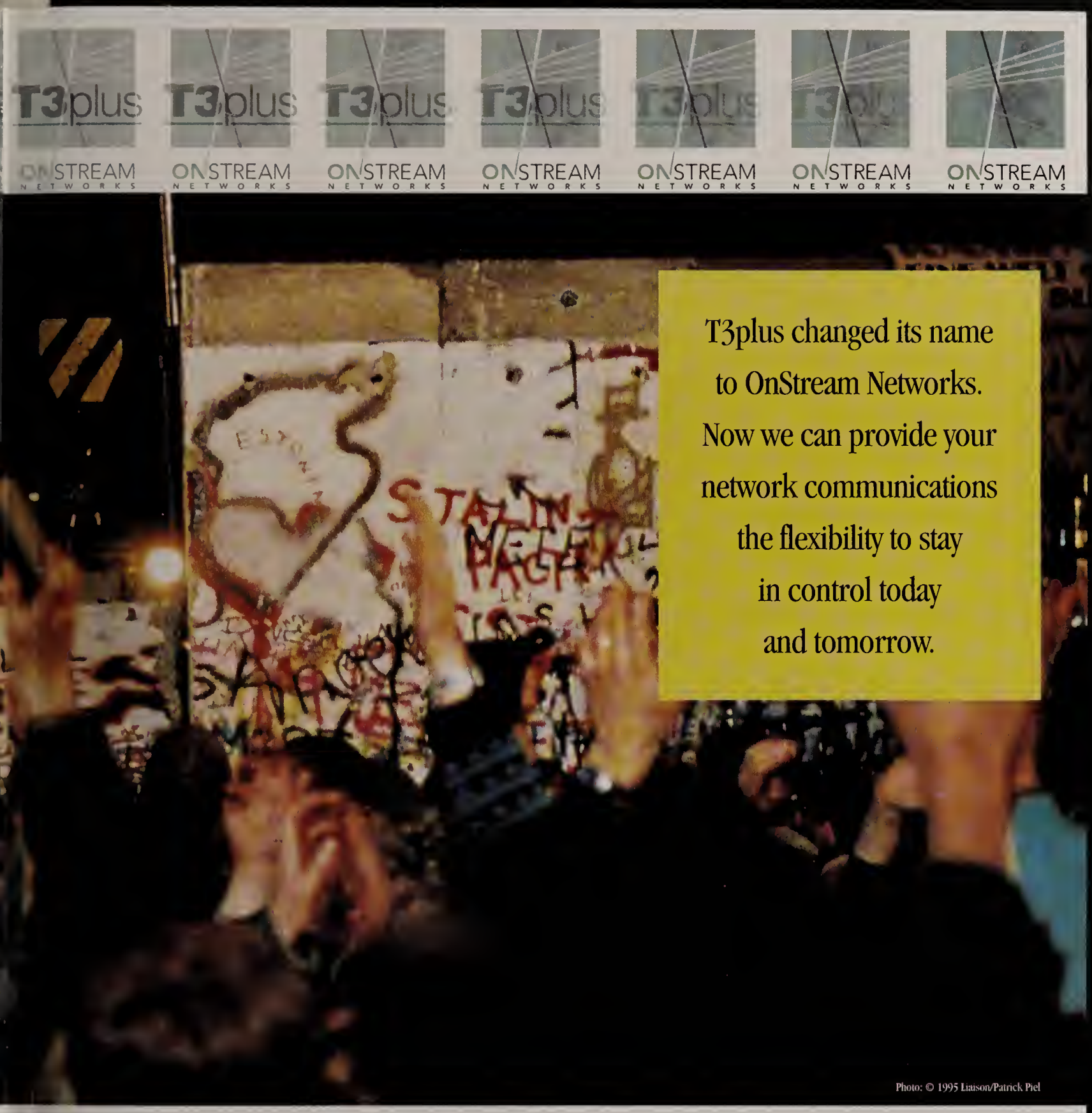

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client/server design that would enable their employees to work more closely through a company-wide internetwork.

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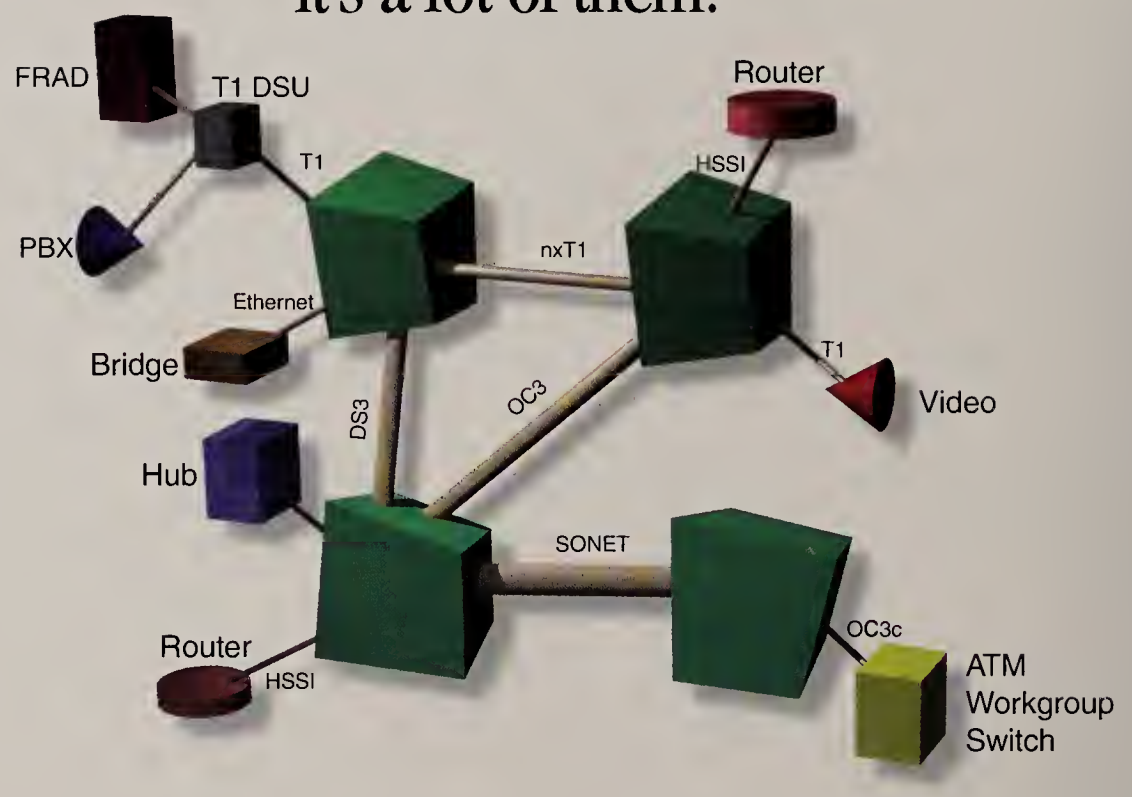

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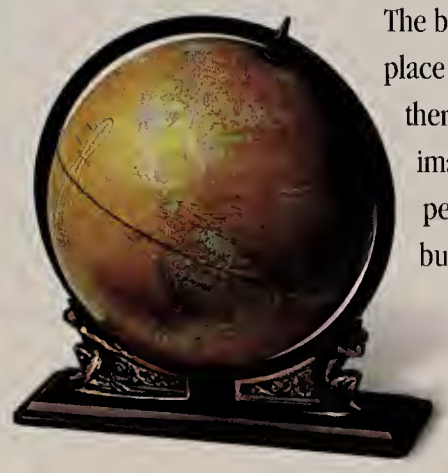

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Briefs

■ **Artisoft, Inc.** *of Tucson, Ariz., this month will ship the new LANtastic 32-bit Client, which supports* **Windows 95** *systems as full clients on LANtastic networks. The software will be available free of charge to all current users of LANtastic, LANtastic Power Suite and Simply LANtastic networks.*

Artisoft: (800) 233-5564.

■ **Frontier Technologies Corp.** *last week announced a* **Windows NT-based Internet server** *that also connects to Novell, Inc. NetWare networks. The product, CyberJunction, supports both IPX/SPX and TCP/IP nets, allowing NetWare users to access it and bridge to the Internet without running IP on every desktop. It comes bundled with a suite of Internet applications, including telnet, File Transfer Protocol and electronic mail. Prices range from $1,795 for five users to $17,250 for 100 users.*

Frontier: (414) 241-4555.

■ **Storage Dimensions, Inc.** *in Milpitas, Calif., last week introduced a new set of tools for managing the company's* **disk arrays** *on Novell, Inc. NetWare LANs. VantagePoint is a Windows-based, Simple Network Management Prococol-enabled application that gathers information from agents residing on NetWare servers. The agents monitor data flow between the operating system and the array.*

The program can be run from a Novell NetWare Management System console, and future versions will run on Hewlett-Packard Co. OpenView and IBM NetView management platforms. Storage Dimensions plans to add agents for Windows NT and Unix systems. The software costs $420, which includes the console program, one server agent and a module that can page an administrator in case of trouble. Additional agents cost $125.

Storage Dimensions: (408) 954-0710.

Unix users yet to be swayed by Windows NT

By Kevin Fogarty
New York

While Windows NT Server seems to be sweeping into corporate nets as a departmental application and file server platform, it could be awhile before the Microsoft Corp. technology seeps into corporate data centers.

Those were the sentiments of network managers and other attendees of Unix Expo, an annual gathering of Unix users and vendors, some of whom referred to Windows NT as an "experimental" server operating system.

"NT is kind of new right now," said Michael Sun, Unix systems administrator at Salomon Brothers, Inc. here. "Down the line, it may develop into a competitive product, and [Microsoft] will probably have some niches, but I don't seen NT replacing Unix anytime soon."

One area in which Windows NT needs to improve is scalability, show attendees said.

Windows NT runs on a variety of Reduced Instruction Set Computing (RISC)-based servers that make up the core of the Unix network and application server hardware market. But the Microsoft software cannot yet run on massively parallel processing servers and does not support a wide enough range of hardware to satisfy the needs of many corporate data centers, said Mark Tebbe, president of Chicago-based systems and network integrator Lante Corp.

"People don't think NT has the hardware depth that Unix does," he said.

Windows NT has also not been around long enough to develop credibility among the people who make the decisions about where mission-critical applications will run, Tebbe said. Those decision makers, familiar with the 25-year history of Unix and its development into a stable platform, still look askance at Microsoft. From their point of view, Microsoft has built its fortune-selling, crash-prone operating systems for PCs, he said.

"I don't think people want to turn to Microsoft for their back ends," Tebbe said, adding that the limitation is mainly a matter of perception, not technology. "I still don't think you'll see anyone who has a large Oracle database of, say, 80 million records, running over to NT anytime soon."

Perceptions aside, there are good reasons to consider moving away from Unix, said Gerald Tauber, vice president and director

See **Unix,** *page 26*

VIEWS ON WINDOWS NT FROM THE UNIX WORLD

"Microsoft is mostly going after Novell with Windows NT. A lot of what we hear about Windows NT displacing Unix refers to desktop Unix, not the networked, server-based applications."

Peter Auditore, marketing [illegible], Hummingbird Com[illegible]

"We don't see Windows NT replacing Unix in our major installations, [illegible] groups within [illegible]"

Clive Prout, [illegible] products, NCR Co[illegible]

OST rolls out an ATM-based Ethernet switch

By Michael Csenger
Atlanta

Trying to make more of a name for itself in the U.S., OST, Inc. last week introduced an enterprise LAN switch with an Asynchronous Transfer Mode (ATM) core.

OST, a U.S. subsidiary of France's OST S.A., unveiled Xcellys-H, a 16-slot switching chassis with a 5.12G bit/sec ATM core. The system adds to OST's current LAN switching line, introduced earlier this year. Previously announced were the four-slot Xcellys-M and the single-slot Xcellys-S, a fixed-configuration workgroup switch fitted with an Ethernet module (see graphic).

The M and H versions both use an ATM cross-point switching matrix to carry traffic between different LAN switching modules. The Ethernet modules use onboard processors to switch traffic locally and can convert traffic to cells for transport across the ATM core, said Ed Bursk, OST's president.

"The heart of our Ethernet switches is also the heart of a whole range of new products we're developing," he said. "The fundamental difference

See **OST,** *page 26*

Switch selection

Product	Description	Price
Xcellys-S	6-port 10Base-T Ethernet workgroup switch. Lacks an ATM switch fabric.	$3,445
Xcellys-M	4-slot LAN switch chassis scalable up to 24 10Base-T ports. Features a 1.28G bit/sec ATM switching fabric. Supports 2-port switched 100Base-T fast Ethernet modules and boasts a redundant, hot-swappable configuration.	$6,000–$12,000
Xcellys-H	16-slot campus switch chassis scalable up to 96 10Base-T ports. Features a 5.12G bit/sec ATM switch fabric, supports 2-port fast Ethernet cards and has a redundant, hot-swappable configuration.	$14,000–$60,000+

OST will double its Ethernet switch capacity early next year with 12-port 10Base-T modules and will add a 155M bit/sec ATM module.

Microsoft to recruit Windows NT resellers

By Peggy Watt
Redmond, Wash.

Microsoft Corp. this month is launching a 65-city U.S. crusade to recruit and train as many as 2,500 new network resellers and system integrators in the use of Windows NT and the BackOffice suite of server applications.

"We're starting to see an industry forming around" these products, said Vince Mendillo, worldwide group manager for Microsoft's Solution Provider Channel Development.

A study by the market research firm Gartner Group, Inc. estimates $25 billion in BackOffice-related sales by 1999, Mendillo said. "We're making sure there are enough resellers" to meet customer demand, he added.

The Net Results program targets firms that are selling and supporting net products already, but that want Windows NT training, said Greg Richardson, group manager for channel management in Microsoft's Organizational Customer Unit.

Part of the lure is the offer of a Reseller Action Pack starter license for the reseller's internal use of NT. The $495 package includes Windows NT Server, a five-user Windows NT Desktop license and BackOffice.

Microsoft's Mendillo *says interest in NT is picking up.*

Those joining the Net Results program will also get a CD-ROM based edition of Microsoft's TechNet developer support information and a selection of self-paced Windows NT training materials published by Microsoft Press. Each attendee also will receive coupons redeemable for further training at Microsoft's Authorized Training and Education Centers around the world.

Microsoft currently has no

See **Microsoft,** *page 29*

For more info on this story, point your browser at http://www.nwfusion.com. After you log in, select News+ and then Local Networks.

NetworkWorld Fusion

Unix

Continued from page 25

of information technology at financial services firm Paresco, Inc. He recently finished converting Paresco's desktops from Unix to Windows NT and brought the Microsoft software in as a file-server platform. Currently, he is considering Windows NT for a database server, as well.

Sticking with Unix on desktops and servers means not having access to early versions of business productivity and other applications that are developed for Windows and Windows NT long before they are ported to Unix, Tauber said.

Software that runs on Intel Corp. machines is also growing up as the power of Intel chips increases, narrowing the power gap between Intel and RISC platforms, he said.

Just as Sybase, Inc. databases, other client/server software and Intel hardware are moving beyond the department and into the enterprise, Windows NT also has a future in the enterprise, Tauber said.

Many Unix resellers and developers have seen the writing on the wall that Windows NT is here to stay, and they have begun adding Windows NT support to their tools, said David Jenkins, branch manager of reseller Robec, Inc. in Horshamp, Pa. "The nice thing about [NT] is that anyone who has a Windows workstation can tie into it. With Unix, you need some kind of terminal emulation," he said. "That's enough reason to buy some [NT servers] right there."

While Windows NT has its attractions, there are some users who will eschew it largely because of all the hard work they had to put in moving to Unix, said Olga Lahola, director of MIS at Roytex, Inc. in South Plainfield, N.J.

"We're not looking to replace anything," Lahola said.

The most likely future for Windows NT is that it will be successful as an augmentation to Unix- or NetWare-based networks, said Brad Day, an analyst at market research firm Dataquest, Inc. in Framingham, Mass. "Most companies are willing to support two or three operating systems in a multivendor environment," he said. ■

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AT&T Mail makes Windows 95 a window to the world

AT&T Mail can help your company expand the productivity of Windows 95 and Windows NT. With our *AT&T Mail Platform for MAPI 1.0*, users can send and receive information to virtually anyone in the world from the Microsoft Exchange client or from within MAPI 1.0 compliant applications.

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Easy to install onto any PC running Windows 95, the *AT&T Mail Platform for MAPI 1.0* supports EDI and fax features that allow users to receive, view and print faxes. Developers can use the platform to add worldwide messaging capabilities into their software or hardware solutions.

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AT&T

OST

Continued from page 25

between Xcellys and other Ethernet switches today is that our ATM core will let us connect a whole suite of different LAN and WAN interface modules without the limitations of a traditional packet bus or backplane."

NETWORLD INTEROP

The new system can be configured for as many as 96 switched Ethernet LAN ports in a fault-tolerant campus backbone setup. It also supports 100M bit/sec fast Ethernet switch- ing for high-capacity server links and interswitch trunks.

Early next year, OST will double Xcellys-H's capacity with 12-port Ethernet switching modules and a 155M bit/sec OC-3 interface for ATM networking, Bursk said.

OST is among a small group of vendors offering LAN switches with an ATM core. Bay Networks, Inc.'s Centillion SpeedSwitch and Cisco Systems, Inc.'s LightStream are available now, while vendors such as Xylan, Inc. and Agile Networks, Inc. will soon release ATM-based products.

Price/performance leader

In addition to touting the ATM technology in its switches, OST is competing on price to gain broader market awareness.

"We got a lot for our money with them," said Peter Esser, director of Columbia University's Center of Computer Applications in Radiology in New York. With a limited budget, Esser chanced upon a performance review of OST's Xcellys-S when he was on the verge of buying another vendor's more expensive switch. "No other vendor came close to OST's price and performance, just in terms of throughput per dollar," he said.

Esser's radiology department is using the six-port Xcellys-S to support a workgroup that handles intensive processing of medical imaging. Evolution to ATM is of interest over the horizon, he said, but the larger capacity of the Xcellys-H is not yet needed.

✆OST: (703) 817-0400.

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Circle Reader Service #27

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Networks that run like clockwork.

Circle Reader Service #36

Digital unveils Pathworks 6.0

Manageworks automates new administrative functions.

By Peggy Watt
Atlanta

Digital Equipment Corp. next month plans to release an update to its Pathworks operating environment that makes it easier for users to find and share net resources ranging from peripherals to data files.

Version 6.0 is also designed to make administering increasingly complex networks less difficult, said Faye Allen, Digital's marketing director for net integration software.

NETWORLD+INTEROP

Like previous versions, Pathworks 6.0 sits on top of users' desktop environments, such as Windows 3.X, Windows 95 and DOS, and interacts with various network operating systems (NOS).

But unlike earlier editions, Version 6.0 includes tools to make it easier for end users to find the resources they want and for managers to maintain that access. For example, an administrator can now identify a resource with a descriptive label of as many as 256 characters, such as "art department printer," instead of a serial number that is meaningless to the end user.

Pathworks 6.0 also lets end users store multiple passwords in an encrypted lockbox and associate those to several servers with a single master password entered at initial logon.

Also new is what Allen referred to as access to a "lightweight groupware" application called Workgroup Web. End users receive a PC-based interface to the Digital's Web product, which acts as an indexing system for files and messages.

Digital also has implemented in Pathworks 6.0 the ability to do attribute-based searches. This would enable an end user, for example, to ask for access to the closest laser printer.

Another new function is that Pathworks 6.0 automatically loads drivers into high memory on Windows clients, freeing RAM on users' machines. The automatic driver loading is a small but helpful function, said Barry Scott, manager of information and communications systems for Sulfur Springs Valley Electrical Cooperative, Inc. in Wilcox, Ariz.

Scott runs Pathworks with Windows for Workgroups on 70 PCs in two locations, connected by T-1 lines. "Loading those drivers into extended memory really speeds things up for users" and is less expensive than upgrading hardware, he said.

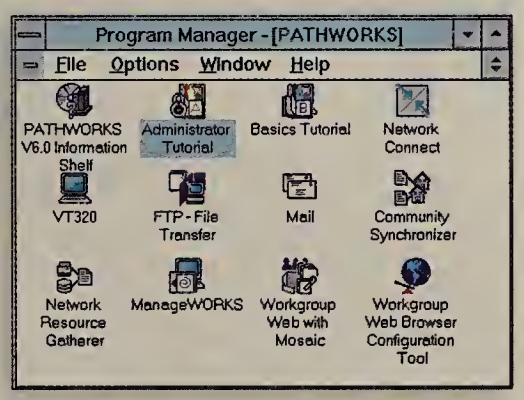
Many of these features can be managed via new tools included in Version 6.0.

An update to Digital's Manageworks administration program allows network managers to automate common tasks across Pathworks networks.

An administrator can avoid installing drivers at individual desktops, for example, by inserting a reference driver on a server that automatically downloads new drivers when end users try to access a new net resource.

These management capabilities are not specific to a given NOS, according to Rob Emsley, marketing manager for Pathworks. For example, network managers could insert pointers to route a user's print command to a printer on another LAN if the first printer of choice is off-line.

Also new is Directory Assistant, which builds and updates a resource directory for each end user and then stores that data in a flat database file, a Microsoft Open Database Connectivity-compliant file or an X.500 format. The Gatherer and Synchronizer features of Directory Assistant periodically check the network and clients to update the directories as needed.



Digital's *Pathworks 6.0 sports improved access to network resources, including the Web.*

Support for Novell, Inc. NetWare Directory Services and Banyan Systems, Inc. StreetTalk formats is under development.

Digital is taking orders for Pathworks 6.0, which costs $99 for an upgrade and $205 for a new license.

✆Digital: (800) 344-4825.

BusinessBriefs

Siemens Network Systems Division last week announced that it has acquired **Ornet Data Communications Technologies, Ltd.** and its U.S. subsidiary, **Onet Data Communications Technologies, Inc.**, a maker of switched Ethernet products. Terms of the acquisition were not disclosed.

Microsoft Corp. has appointed three product group leaders to the position of vice president. **John Ludwig** is now the vice president for Windows, after serving as a general manager responsible for Windows 95's networking features. He had also worked on Windows for Workgroups. **Bob Muglia** is now vice president for Windows NT program management and BackOffice, and continues his work in the business systems division. **Jon De Vaan** was named vice president for development in the desktop applications division. He previously directed that division and the Microsoft Office development group.

Microsoft

Continued from page 25

formal authorization program specifically for Windows NT resellers, so the Net Results effort will help distinguish those who have Microsoft-sanctioned training and experience, Mendillo said. While more than 4,000 Microsoft Solution Providers worldwide already focus on Windows NT Server, they do not necessarily have expertise in BackOffice.

Novell, Inc. NetWare value-added resellers are among the resellers being targeted by Microsoft, Richardson acknowledged. "We're looking at those resellers with some network experience," he said. "We want NetWare installers, [Artisoft, Inc.] LANtastic installers, Unix installers and even some high-end specialty VARs."

Microsoft wants new recruits, such as systems integrators who have not resold Windows NT, Richardson added.

Hewlett-Packard Co. is Microsoft's partner on the Net Results program.

✆Microsoft: (800) 550-4300.

Net Results benefits

- Reseller Action Pack
- Microsoft Press training materials
- 2 free 1-day technical training sessions
- 2 free half-day sales training sessions
- Windows NT installation hot line support
- Sales leads from Microsoft's database

NET RESULTS

The real meaning of 'standards-based'

We were racing up the Spaulding Turnpike in New Hampshire recently to pay a visit to the gang at Cabletron Systems, Inc. when a huge white banner on the side of a building near the highway caught our attention.

The building was the corporate headquarters of a machine tool shop, and the banner screamed "ISO 9002 Certified" in 4-foot blue letters. As we drove along, we wondered if the average Joe tooling down the Spaulding would know what that meant or even care.

Skip MacAskill and Melinda Le Baron

We don't mean to scoff at a company that has put a lot of thought into its quality-assurance program and probably worked hard to secure that certification. We're just wondering what, beyond providing users with a certain comfort level, an ISO certification really says about the ultimate usefulness of a product or service.

This is also not intended to poke fun at ISO, as this issue applies to industry standards in general. Many of our friendly (and not so friendly) vendors in the networking industry will boastfully claim that their offerings are standards-based, but what does that really mean?

In many cases, it means zilch. In theory, if devices from two vendors comply with the same standard, there is a reasonable expectation that those devices will work together. But while standards compliance increases your chances of interoperability, it does not guarantee it. Take routers as an example. The leading vendors deliver standards-based products, but how many of you have actually gotten them to interoperate at a meaningful level?

You know, it's not an easy or straightforward exercise. Just look at how many mixed-router environments we have. To get the best routed network up and running, you essentially have to stick with one vendor.

Don't take this as an antistandards stance, however. We support standards and recommend that users stick with standards-based products. With standards, you can establish a most common denominator and at least have a basic set of requirements on which to build your net.

This is particularly true in the area of network management, where you could argue that standards compliance delivers its best value. If you have multiple devices in the net but they all carry a management agent based on the prevailing standard — SNMP — you can at least monitor the environment and maybe even manipulate it.

That's why we were both heartened and dismayed by two recent news items. First, kudos to the Mobile Management Task Force, formed recently with a charter to finalize the SNMP Mobile Management MIB via the Internet Engineering Task Force. This MIB will allow net managers to collect a variety of information, such as connection type and modem speed, from mobile network devices, including wireless gear.

Second, boos to Microsoft Corp. for its less-than-compliant adherence to the Desktop Management Interface (DMI). Microsoft, which has a long history of thumbing its nose at anything it doesn't initiate, refused to support the Component Interface of DMI in Windows 95, forcing the Desktop Management Task Force to revamp its DMI compliance rules.

Standards are a good thing, but users need to keep them in perspective and fully understand what they can actually deliver in terms of interoperability and compatibility. On the network management side, the importance of standards cannot be overemphasized.

MacAskill is a senior research analyst and Le Baron is a research director in Gartner Group, Inc.'s Network Computing Infrastructure group. They can be reached by E-mail at inquiry@gartner.com or by phone at (203) 316-1111.

8:30 AM
Arrive at work. Hear strange noise down the hall.

8:35 AM
Tiptoe down hallway to investigate.

WUMPA da WUMPA da WU

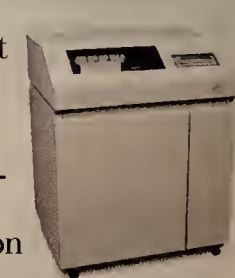
8:37 AM
It's the printer trying to speak.

8:38 AM
It's Greek to you.
But you bought IBM, so you get IBM service.

9:36 AM
They arrive to translate. Printer's saying, "Clean my print head."

10:29 AM
Heads are rolling. But not yours.
Thanks IBM.

Guaranteed response time. A preventive maintenance program to make sure supplies get replenished and printers get cleaned, cared for and just checked out. Now you have a better idea of why our customers sleep well. Whatever your client/server printing needs, we have nine laser and impact workhorses to meet them. Such as our 400-, 800-, and 1200-lpm impact printers: all strong, silent types (only 52 dBA), ideally suited for heavy, continuous use, that you can plug and play on virtually any platform. To enhance your peace of mind, call 1 800 IBM-3333, ext. IA036. Or you can find us on the Internet at printers@vnet.ibm.com



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Briefs

■ *Last week,* **Keyfile Corp.** *in Nashua, N.H., last week said it will integrate its* **workflow** *technology with* **Microsoft Corp.'s** *Microsoft Exchange Server.*

Keyfile's technology uses graphical user interface-based screens to create a workflow routing scheme. Users of Exchange Server, Microsoft's as-yet-unreleased messaging server, will be able to employ the Keyfile capabilities from a Windows single-user interface. Keyfile plans to demonstrate the merged products at the Comdex show in Las Vegas later this fall.

■ **Powersoft, Inc.** *and* **Novell, Inc.** *will distribute through their authorized resellers starting Nov. 7 an* **integrated client/server computing package** *call PowerWare.*

The package includes Powersoft's PowerBuilder tool set, its Watcom SQL relational database manager and Novell's NetWare. PowerWare is intended to help customers quickly build and deploy client/server applications.

PowerWare's desktop version, which uses the low-end PowerBuilder configuration, costs $3,995. A version that uses the more advanced PowerBuilder Enterprise costs $1,495.

■ **Jyacc, Inc.** *of New York has released a new version of Jam7/TPi, an interface to link applications built with Jyacc's Jam tool set to Novell, Inc.'s* **Tuxedo transaction processing monitor.**

The new version includes a graphical program, called a wizard, that developers can use to quickly lay out and then automatically generate client screens to work with Tuxedo. Wizard also can be used to build server-based application services.

Pricing for the Jam7/TPi client component starts at $750 for a Windows license; the server component starts at $4,000 per application server.

Jyacc: (212) 267-7722.

Intersolv makes virtual data warehousing real

Offering lets multiple databases seem like one to end users.

By Barb Cole
Rockville, Md.

Intersolv, Inc. this week will roll out software for building a virtual data warehouse in which end users can query multiple databases without moving the information into a centralized one.

The offering consists of middleware based on Microsoft Corp.'s Open Database Connectivity (ODBC) specification that culls data from more than 35 databases, plus a Windows-based front-end query and reporting tool.

Data warehouses pull data from networked applications and databases, creating a storehouse of information that can be used to run queries and mine out business trends. Building a data warehouse can be costly and time-consuming because data must be moved from existing data stores, translated into a common format and maintained in a separate database.

Dave Waller, director of data warehousing solutions at Intersolv, said the company's new products are aimed at firms that are piloting data warehousing but would rather not invest in building a physical data warehouse.

Desktop access

Using Intersolv's Virtual Data Warehouse tools, end users can access multiple databases from their desktops without loading individual ODBC drivers for each data source.

A client-based middleware piece, dubbed DataDirect SmartData, lets users retrieve information from more than 35 databases using any ODBC-compliant front-end tool, Waller said. The software converts data when appropriate and translates technical terms into common business ones, so end users do not have to write SQL queries. It also includes a metadata repository for tracking the source of pertinent data, which can run on a client or server machine, he added.

The second component, DataDirect Explorer, is a collection of desktop access, analysis and presentation tools for querying, editing and reporting on corporate data. The tool set has links to Microsoft's Messaging Application Programming Interface-compliant electronic mail systems for zipping query results or reports across the network, plus a job scheduler for automating that task.

Analysts said virtual data warehouses are attractive because they spare users from the cost and work of setting up a dedicated data warehouse. However,

See **Intersolv,** *page 34*

RealityCheck

Product
Virtual Data Warehouse

Company
Intersolv

The benefits
- ▲ Data does not have to be moved into a central repository.
- ▲ Low software and administrative costs.
- ▲ Has E-mail hooks that let end users distribute reports to other users.
- ▲ Works with ODBC-compliant front-end tools.

The drawbacks
- ▼ Users cannot do queries that cull data from multiple data sources.
- ▼ Does not do multidimensional analysis.
- ▼ Legacy data types that do not support ODBC, such as mainframe databases, are not accessible.

The user view

"For departmental systems that are not high-volume or mission-critical, the Virtual Data Warehouse provides a cost-effective way to get the benefits of a data warehouse."

Paul Schloff, section manager in IT, Inland Steel, Chicago

MIMEsweeper stops viruses at the front door

By Annmarie Timmins
Atlanta

Integralis, Ltd. last week at NetWorld+Interop introduced a security product that checks incoming Internet mail for viruses, quarantining tainted messages and delivering clean ones.

When a virus is detected, the software holds the message and alerts a network manager armed with antivirus software, said Tim Crabtree, a senior consultant with Integralis.

MIMEsweeper runs on a Microsoft Corp. Windows NT workstation serving as an Internet gateway on a Lotus Development Corp. cc:Mail or Simple Mail Transfer Protocol electronic mail net.

Support for Microsoft Mail and Message Handling Service (MHS) E-mail systems is planned for the next version, which the company hopes to ship before the end of the year.

Also in coming versions, Integralis plans to incorporate support for encrypted messages, a company spokeswoman said.

MIMEsweeper breaks each message into several bits, then analyzes those for questionable file types and viruses, Crabtree said. The names of addressees and recipients are checked for accuracy; the text of the message is scanned for wording irregularities; and attachments are checked for viruses as well as problem information files and macros.

The software requires that clean messages be delivered to the recipient within 30 seconds, but one reviewer found the longest delay to be 6 seconds.

Viruses are a valid concern because they can affect a single user's PC or an entire network's post office, said Daniel Blum, an analyst with Rapport Communication.

But he cautioned against relying on MIMEsweeper to protect a network from all viruses.

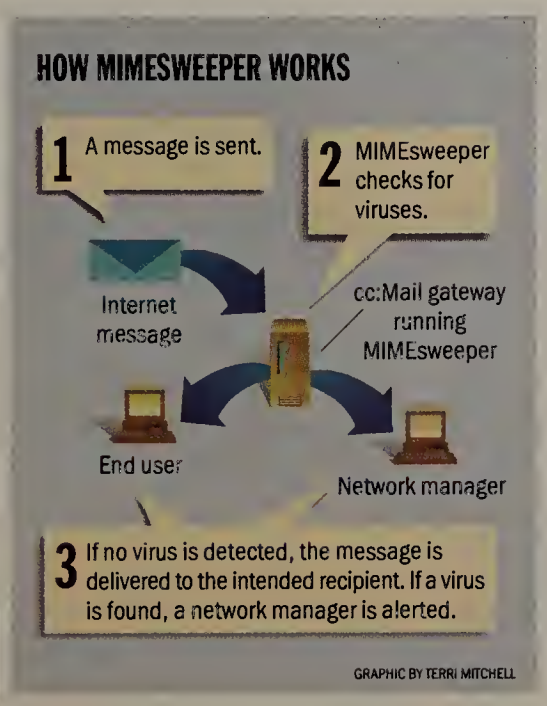
"This is just a check at the front door," he said. "There are still other ways to introduce a virus. This will not absolve the user from having additional software to check for viruses on the network."

Blum said the increase in security may be paid for with a decrease in a network's cc:Mail gateway performance. The cc:Mail link to SMTP already needs improvement, he said, and this software would put added demand on it.

An Integralis spokesperson said the software allows network administrators to customize MIMEsweeper to run as few or as many security checks as wanted, thereby putting as little or as much added demand on the gateway as the users wants to tolerate.

The software is priced at $5,000.

✆Integralis: (415) 949-3340.



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pentium

PRODUCT 1994 OF THE YEAR

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$3,579[2]
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- 192MB Max ECC Memory
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HP NetServer Assistant
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HP Remote Assistant
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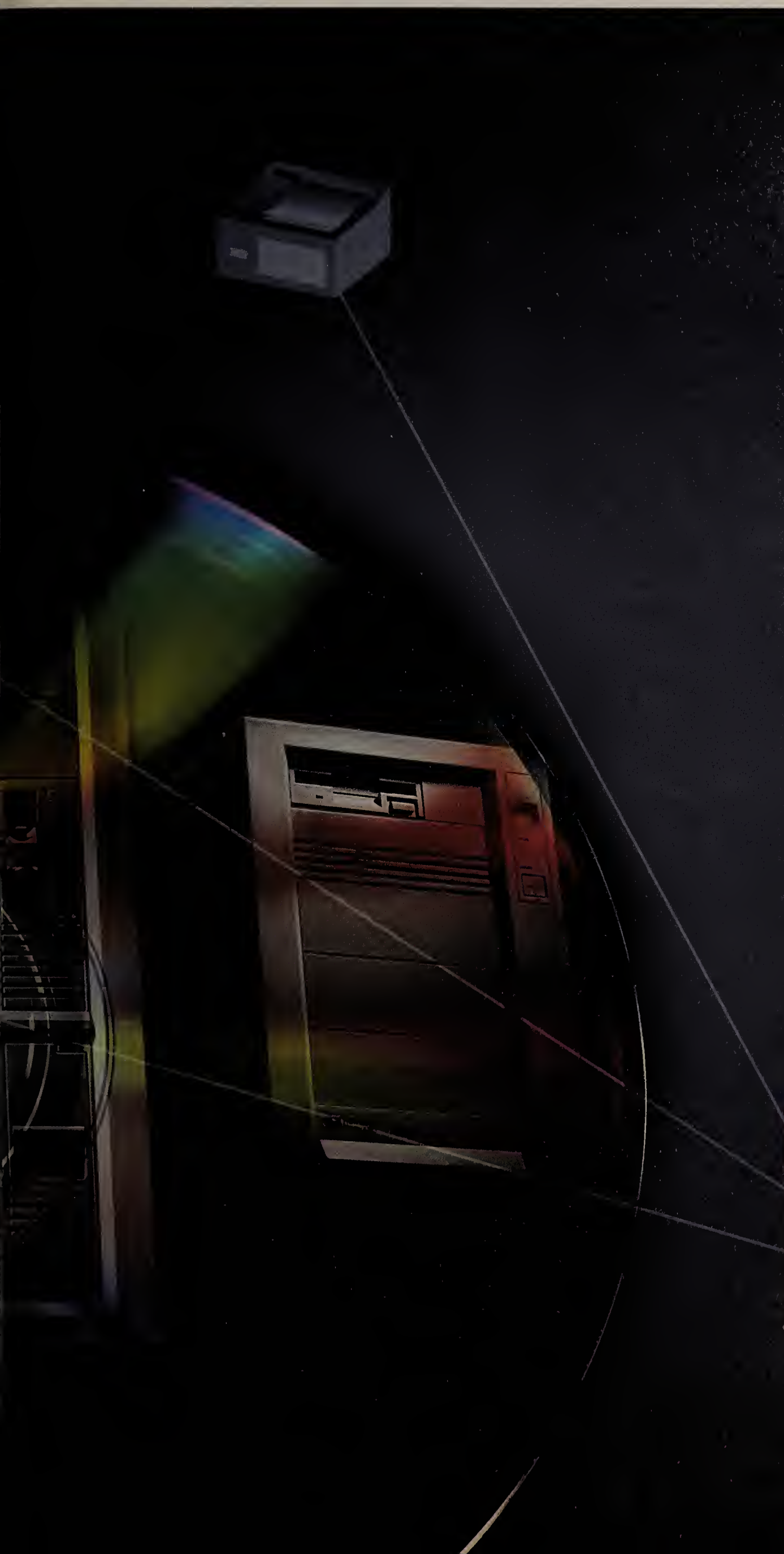

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Dynasty upgrades apps builder

By John Cox
Lisle, Ill.

Dynasty Technologies, Inc. has enhanced its development environment so application code can be automatically divided among networked client and server computers.

The new Partitioning Assistant in Dynasty 2.0 is one of several changes designed to strengthen the tool set for deploying large-scale, distributed applications. By contrast, many early client/server tool sets were designed to create PC-based graphical user interface applications that could access only a single database server.

Dynasty's first release, issued about a year ago, let developers build applications in which the constituent application objects had to be individually assigned to run on specific servers, according to Kate McGowan, Dynasty's director of marketing.

With Partitioning Assistant, developers can now select from one of four distribution models and assign names to servers presented in a list. The models let developers choose among options, such as running some logic on a separate application server.

The Partitioning Assistant then automatically assigns objects to servers. This new logical model can be viewed and modified as a set of diagrams in the graphical Partitioning Editor. Dynasty then generates all the code needed for the client and server objects, as well as the communications connections.

"The [automatic] partitioning capability is going to prove to be critical," said Ron Rierson, chief executive officer of Logicom International, Inc., a Denver software start-up. Logicom is using Dynasty as the basis of a "software factory" that will create software components and subassemblies that will be used in the communications industries.

According to Rierson, these companies face rapidly changing business demands. "If you aren't able to get yourself into a multitiered application environment and then move your processes around to where they are most effective, you end up getting choked," he said.

Another key change to Dynasty's software, Rierson said, is its support for Novell, Inc.'s Tuxedo transaction processing monitor, which is used to control complex transaction systems.

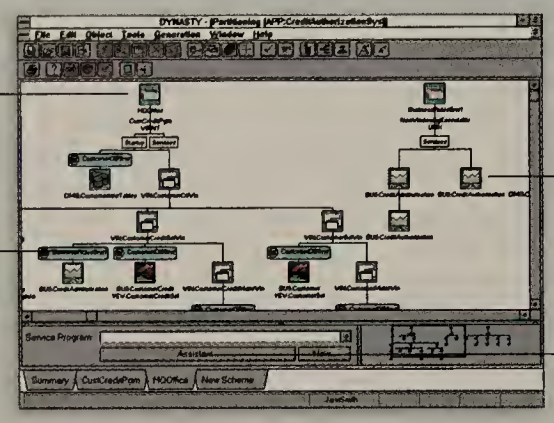
Version 2.0 also now supports Oracle Corp. Oracle7, Sybase, Inc. System 10 and IBM DB2/2 databases.

Dynasty 2.0 is available for $7,995 per developer, plus a one-time fee for each target platform.

©Dynasty: (708) 769-8500.

DISTRIBUTING CODE AUTOMATICALLY

Dynasty 2.0 offers the Partitioning Assistant, which automatically divides an application's objects – database tables, business rules and so on – between clients and servers. The tool set then generates code for specific operating platforms and database managers, along with the needed communications code.



Intersolv

Continued from page 31

virtual data warehouses are not likely to replace dedicated warehouses, they said.

"We feel that virtual data warehouses are best suited for applications that are of limited scope or limited duration," said Robert Scheier, senior analyst at Hurwitz Consulting Group, Inc., a consulting and publishing company in Newton, Mass.

For example, Scheier said a virtual warehouse would be ideal if a hospital had to generate a lot of detailed information about one pa-tient. However, a dedicated, physical warehouse would be better for culling information about multiple patients over time, he said.

Available now, SmartData and Explorer are sold together for $499.

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Nutcracker helps Unix users dance to Win95

Datafocus targets Unix-to-Win95 application conversion.

By Peggy Watt
Fairfax, Va.

Datafocus, Inc. has extended its Unix-to-Windows application conversion tool set to let users port Motif and other Unix applications to run on Windows 95 systems.

The vendor announced several new versions of Nutcracker, which helps developers port Unix applications to the Win32 subsystem of Windows NT.

The Nutcracker suite

Nutcracker Software Developer Kit (SDK) 1.5, scheduled to ship this quarter, can give Motif applications a Windows 95 look and feel, according to Patrick Higbie, Datafocus' chairman and chief executive officer. The product links Motif to Windows controls through Dynamic Link Libraries (DLL).

Scheduled for release early next year, Nutcracker SDK 2.0 ports Unix applications to Windows 95.

Developers can recompile Unix source code to translate Unix language functions into Windows 95 calls. The process occurs through the use of Windows DLLs supplied with Nutcracker.

The Nutcracker family supports the C and C++ programming languages.

"The majority of mission-critical client/server application software today is written in Unix," Higbie said.

"Our mission is to get that resource to the Windows 32-bit environment," he added.

The technology draws on Datafocus' experience as an X Window Server developer.

The Datafocus SDKs consist of the Nutcracker software programming interface and programming tools from Mortice Kern Systems, Inc.

The package that is currently shipping costs $1,995. Upgrade pricing will be available upon release.

©Datafocus: (703) 631-6700.

SHARED LOGIC

The adventures of Netscape, Novell, Microsoft

It seems you can't go through a week without having some software company acquire another or seeing a key technology change hands.

Since such events can have significant consequences on your day-to-day ability to manage and roll out client/server applications, I'm going to comment this week on several of them.

Interestingly, these events happen to correspond to three different phases of life — puberty, middle age and retirement — in a technological context.

■ **Netscape buys Collabra.** Netscape Communications Corp. two weeks ago announced plans to buy Collabra Software, Inc. for about $108 million. The acquisition would take place at a time when Web technology is about to enter puberty.

Mike Rothman

The Internet has about the maturity of a 12-year-old — first learning to present itself to the public, beginning to hold a comprehensible conversation with adults and indicating that, someday, it will be a useful member of society.

Netscape seems to realize there is more to a sustainable software business than hype and marketing. To live up to the considerable hype about the Web, Netscape needs to continue finding ways to leverage the ubiquity of the Internet to foster better collaboration within and among companies.

Enter Collabra. Its CollabraShare groupware gives Netscape a new avenue from which to expand the Web paradigm.

People have been making noise about Lotus Development Corp. Notes vs. the Web for a while. My position has been that the Web vendors will either need to buy or build collaborative extensions to truly compete with Notes. Netscape chose to buy.

■ **Novell gets back to basics.** Novell, Inc. has entered middle age. I won't quite say the company is emerging from a midlife crisis, but I guess Ray Noorda thought Unix was some red Porsche that would convince everyone that Novell was still cool. But the company fooled no one. Hats off to the new management, finally understanding the power of the Novell brand.

Novell has now sold the Porsche and dusted off the old connectivity Cadillac. By aligning with The Santa Cruz Operation, Inc. at the low end and Hewlett-Packard Co. at the high end, Novell will better position its networking services as a means to integrate data and resources on many different platforms.

Within five years, look for NetWare Directory Services to supplant NetWare as Novell's main product.

■ **Microsoft jettisons Macintosh Mail.** Microsoft Corp. has put Microsoft Mail for the Macintosh in a nursing home. There is plenty of life left, but the product just could not continue to live on its own.

Clearly, the Macintosh is not a strategic platform for Microsoft back-end services. But there are hundreds of thousands of Macintosh users who have been feeling awfully neglected since Microsoft decided to stop upgrading its Macintosh messaging software.

Users, take heart.

Microsoft could not have found a better retirement community. StarNine Technologies, Inc. is one of the few companies that understands the Macintosh mail world. By combining StarNine's gateway technology with the core platform, users will be able to migrate toward a next-generation messaging system when they want to, not when Microsoft wants them to.

So you see, technology does imitate life. Scary, isn't it?

Rothman is a vice president in META Group's Global Networking Strategies service in Reston, Va. Feedback is welcome either by E-mail at miker@metagroup.com or by phone at (703) 860-6600. Rothman's column alternates in this space with that of Marc Myers, president of Client/Server Connection, Ltd.

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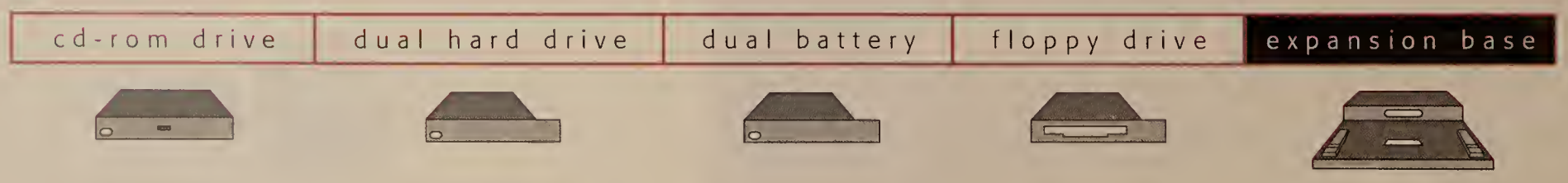

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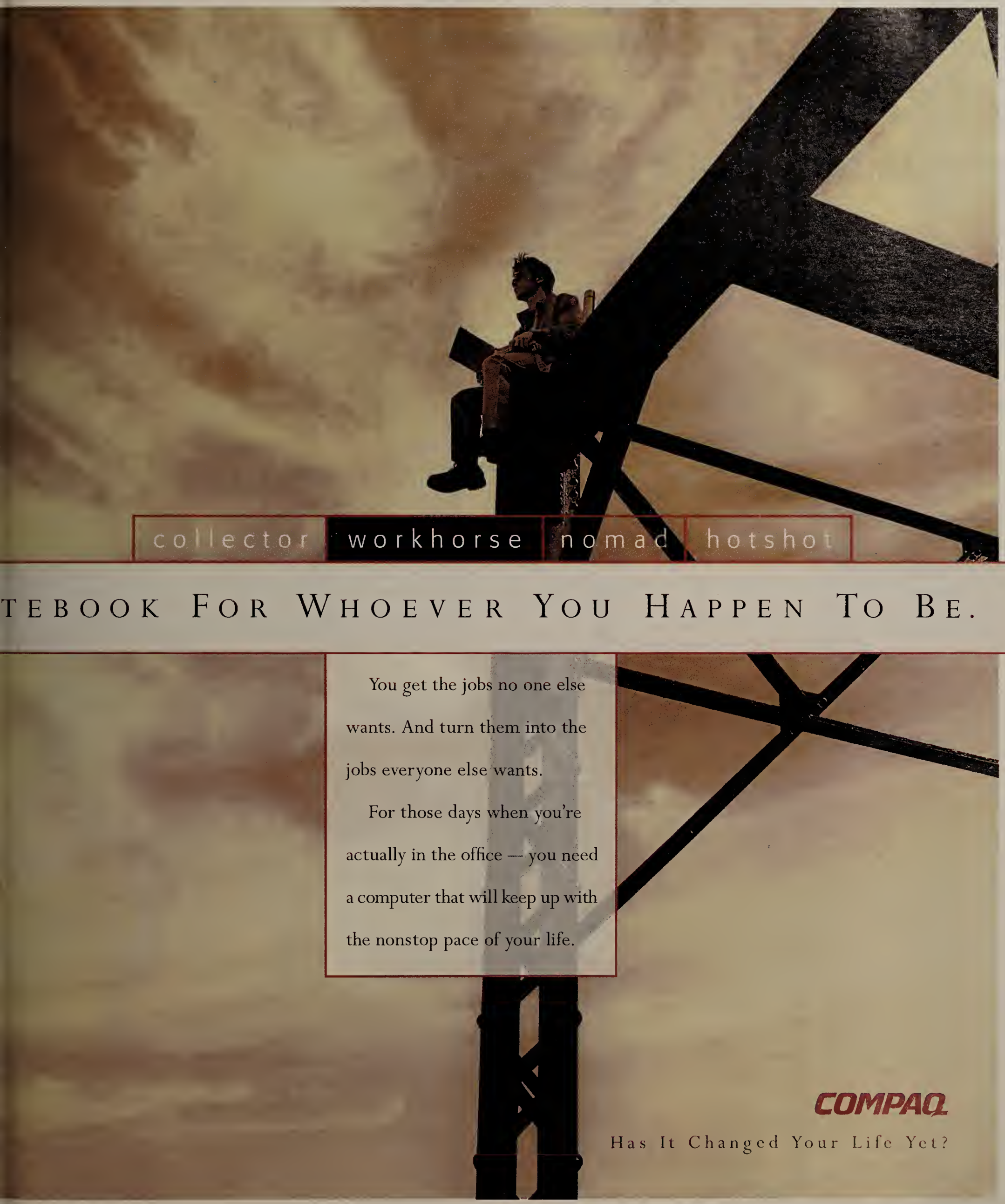

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Special Focus

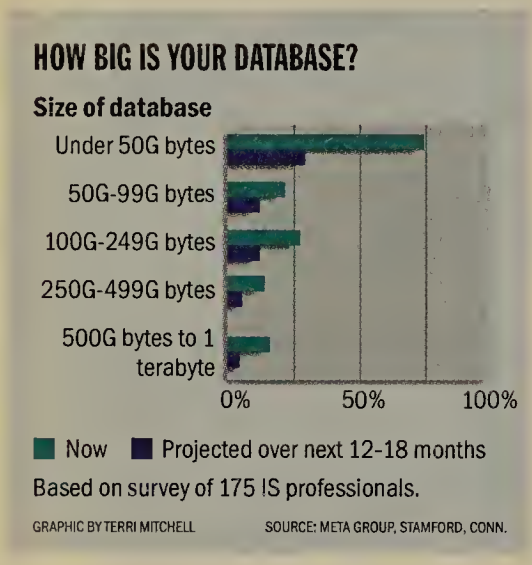
VERY LARGE DATABASES

Big databases offer users big benefits . . . and problems

By John Cox

As corporate client/server databases get bigger, so do a host of problems that can torpedo vital applications and frustrate the sharing of data across an enterprise.

"You designed a database for about 2G bytes [of data], and now you're facing 40 [G bytes]," said Paul McGuire, a principal with Unisys Corp.'s new Enterprise Client/Server Practice. "If you have a client/server application where the client and the server [database] are tightly linked, you're stuck with almost a rewrite [of the system]."



The bigness issue most typically takes two forms. First, departmental LAN databases are ballooning to sizes for which they were not designed, and the data they hold often cannot be shared with users in other departments. Second, users have begun consolidating transaction data into specialized databases, called data warehouses.

In the first case, problems can include overloaded database servers and networks, and isolated islands of client/server applications. In the second case, problems can involve routine tasks, such as backup or data loading that ends up running far longer than expected, lack of monitoring tools and immature advanced technology such as parallel databases.

Buying bigger computers and beefing up networks are only temporary and partial solutions, users said.

"If you're doing lots of data manipulations, moving lots of [database] tables back and forth, and making lots of data views, you're going to impact the network," even in fast Ethernet and FDDI environments, said Tom Henderson, vice president of engineering at carrier Unitel, Inc. in Indianapolis.

Preparation is key

The real solution, users said, is creating a data architecture that supports the growth of large databases and facilitates information sharing. In McGuire's experience, client/server databases usually have not been well designed to begin with. "I would say in six of 10 cases, there's no data model. In seven out of 10, the database design is out-of-date," he said.

Implementing the architecture then becomes a set of technical and product decisions. "Pick a database management system that can scale," said Don DePalma, a senior analyst at Forrester Research, Inc., a market research company located in Cambridge, Mass.

Be skeptical of database vendors' scalability claims.

"You cannot assume scalability [in a relational database system]," said Jonathan Vaughan, vice president of applied technology at Chase Manhattan Bank, N.A. in New York. "You have to test it with the size of the data set you're planning to use."

The operating platforms for big databases add a whole new level of complexity.

"You have to invest in training, database administration and database support," Vaughan said. "These [large client/server] systems are no easier to deal with than the [mainframe] host environments" in terms complexity, number of variables and total costs, he said.

Expect the unexpected and plan for it.

"The sheer number of tasks being done by the operating system, and the number of connectivity tasks, cause their own kind of instability," said Jesus Rodgriguez, director of systems architecture at Fingerhut Corp., the Minneapolis mail-order cataloger. Some two thousand Fingerhut end users are working with a 600G-byte Oracle Corp. database — though a chunk of that is replicated or copied data — running on Unix servers with a dozen or more processors.

"Though Unix has been made more robust, it was not designed to handle that kind of a load," Rodriguez said. "The weak points come up."

Similarly, such large-scale databases can uncover — and at Fingerhut have done so — hidden problems in the database engine software itself. Oracle has worked closely with Fingerhut to correct these, Rodriguez said.

Many companies now are funneling transaction data from databases such as Fingerhut's, into large decision-support or read-only databases. MCI Communications Corp. has a 1-terabyte database that is used by just 10 to 20 end users to make critical marketing and sales decisions for the consumer market.

The system consists of Informix Software, Inc.'s Informix OnLine Dynamic Server relational database running on a 104-processor IBM SP2 computer. MCI was prepared for possible glitches with the initial releases of all this leading-edge technology but met fewer problems than expected, according to Rob Geller, director of consumer marketing and sales systems at MCI's Colorado Springs site.

The biggest issue has been taking into account that the design of the database would change over time. "We planned for several redesigns and reloads," Geller said. "The databases are so large . . . reloads can take three weeks."

Managing the queries on such large data sets is also important.

"Look at the queries your end users are involved with," said Charles Tarzian, president of Coyote Technologies, Inc., a New York firm specializing in large client/server systems. "Create a matrix [of query types] and understand the percentages of [different kinds of] queries. You're getting insight into what's important to your end users."

Bigger databases can be better. All it takes is a bigger effort. ■

Warning: Database management tool shortage

Veterans of large client/server databases warn that you cannot expect much help in the form of a full set of mature, proven tools.

"There's a lack of good monitoring tools," said Jesus Rodriguez, director of systems architecture at Fingerhut Corp. in Minneapolis. "Some tools companies in the mainframe market are coming across to client/server. But the tools are weak for very large databases with lots of users."

Among other things, Fingerhut had to write its own multithreaded database backup program for several hundred gigabytes of data.

The lack of tools puts added burdens on MIS. "You have to simplify and manage the data problems or you're setting yourself up for real difficulties," said Jonathan Vaughan, vice president of applied technology at Chase Manhattan Bank, N.A. in New York. Given the tools shortage, users must extensively test and simulate the large database environments, both men agreed.

Users should look not only for tools that can do the "deep down and dirty database things," such as disk segment verification, said Don DePalma, a senior analyst at Forrester Research, Inc. in Cambridge, Mass. Look also for the capability to manage these databases remotely and to link your tools with management frameworks, such as Computer Associates International, Inc.'s CA-Unicenter or Tivoli Systems, Inc.'s Tivoli Management Environment, he said.

Nondatabase vendors that have jumped in to help users deal with large database management include:

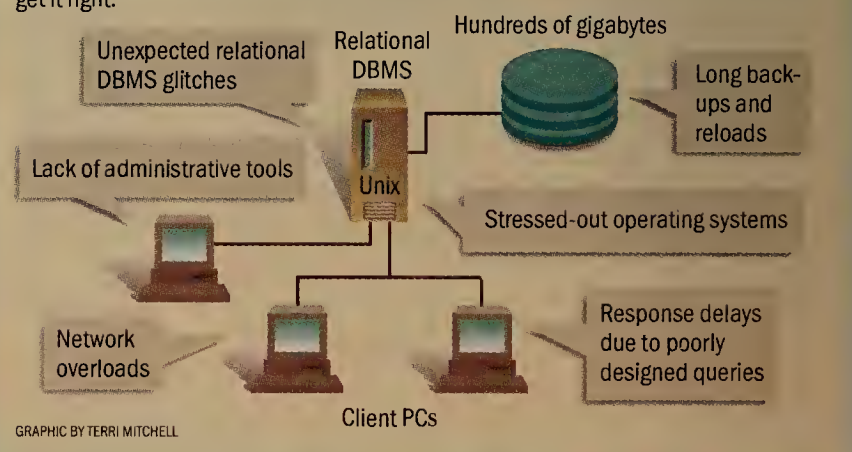
■ Houston-based BMC Software, Inc., which offers software that lets users do incremental backups and recovery of large databases. BMC is readying versions of its Patrol database monitoring tools designed to work with Oracle Corp.'s Oracle7 Parallel Edition, Sybase, Inc.'s System 11 and Informix Software, Inc.'s OnLine Dynamic Server.

■ Platinum Technology, Inc. in Oakbrook Terrace, Ill., offers utilities that let administrators reorganize database tables, delete unwanted data and monitor performance.

■ Compuware Corp. in Farmington Hills, Mich., markets the Ecotools suite of database monitoring tools.

Big databases, big challenges

Fast-growing LAN databases and data warehouses need careful planning and a data architecture to handle such growing pains as these. Users need to do lots of testing to get it right.



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Briefs

■ **Sterling Software, Inc.** *is shipping Release 3.0 of it Gentran:Server electronic commerce gateway, which acts as a routing hub for diverse electronic mail and electronic data interchange formats. The Gentran:Server 3.0 is designed to perform* **data archiving** *according to Internal Revenue Service guidelines.*

Sterling Software: (614) 793-7000.

■ *This month,* **Quarterdeck Corp.** *will ship IWare InternetSuite 2.0, Internet connectivity software for NetWare networks. The software contains a* **NetWare Loadable Module** *that runs on top of NetWare 3.X and 4.X server TCP/IP stacks, letting NetWare users run WinSocket-compatible TCP/IP applications without the need for a TCP/IP stack or an address at each workstation.*

IWare InternetSuite 2.0 will cost $1,295 for a five-user license and $11,995 for a 100-user license.

Quarterdeck: (408) 749-8172.

■ **Adobe Systems, Inc.** *intends to purchase privately held* **Ceneca Communications, Inc.,** *a Palo Alto, Calif.-based developers of World-Wide Web products, for an undisclosed price. Adobe said the purchase of Ceneca is part of a strategy for producing professional-quality* **authoring tools** *for the Web.*

■ **Galacticomm, Inc.** *has started shipping its Worldgroup Internet Server, which combines a Web server with Galaticomm's* **on-line workgroup software** *and Internet connectivity software.*

Galacticomm: (305) 583-5990.

■ **The National Security Agency** *has awarded contracts for the production of more than 310,000 PCMCIA Fortezza* **encryption cards** *to National Semiconductor Corp. and San Jose, Calif.-based SPYRUS, Inc.*

Hooking the Web to back-end processors gets easier

Edify Corp. introduces Electronic Workforce for the Web.

By Ellen Messmer
Santa Clara, Calif.

Edify Corp., known for its Electronic Workforce software that businesses use to pull information from voice response systems and route it through workflow processes, has introduced a version for the Web.

Currently in beta tests with Signet Banking Corp. and First Union Corp., among others, Electronic Workforce 4.0 lets users connect their Web server applications to internal databases or processing systems.

Richard Graham, vice president in charge of Signet's Telebank service, said the bank would like to offer customers new services, such as access to imaged checks, over the Web. Using Edify's object-oriented code makes it much faster and easier to connect its Web home page to back-end databases than if the bank had to customize the programming, he said.

Signet already has a Web page for accepting student loans that receives more than 30,000 visits per month. The bank has long used Edify's software to process customer requests via interactive voice response and anticipates using the new version of the Electronic Workforce to expand Web-based banking services.

First Union is testing the Edify Web-based software with the goal of letting customers access information about their retirement accounts, according to Michelle Grant, a vice president at First Union.

©Edify: (408) 982-2000.

NetworkWorld Fusion

For more info on this story, point your browser at http://www.nwfusion.com. After you log in, select News+ and then Electronic Commerce.

WebTrader 2.0 processes forms, sends confirmation.

By Ellen Messmer
San Rafael, Calif.

SBT Accounting Systems, Inc. has begun shipping WebTrader 2.0, a tool kit for processing electronic business forms directly from the Internet to SBT's back-end accounting software.

When customers send in orders, product registrations or surveys using a secured browser, WebTrader automatically distributes the information to the internal accounting system. In also generates an encrypted confirmation back to the customer via electronic mail.

To cut down on the paperwork associated with stock trades, the Chicago brokerage American Stock Transfer & Trust Co. is using WebTrader to develop electronic forms that shareholders and brokers can download from the Internet.

"We're putting these documents on-line so they can send in the instructions on-line and, hopefully, eliminate at least 10% of the phone calls," said Shimon Lichtman, the brokerage house consultant on the project.

The WebTrader software, which costs $1,295, is priced low enough to persuade small entrepreneurs to take a shot at electronic commerce on the Internet, too.

"I know the Internet has potential, and I say let's try it," said David Goldstone, president of The New York Smoked Fish Co., which is accepting encrypted credit card orders for its gourmet salmon across the Internet using WebTrader.

For businesses that do not want to operate their own Web servers, SBT leases space on its server for $395 per year. And it's there that The New York Smoked Fish Co. will be hawking its goods at www.business1.nysf.com.

©SBT: (415) 444-9900.

BUSINESS SPACE

Using the @!#*#! and @#!&% words

Regular readers of this column may have noticed my predilection for quotations. I came across the following bon mot attributed to somebody called Walter Davenport (I have absolutely no idea who he was or what he did): "An editor is a person who knows precisely what he wants but isn't quite sure."

Mark Gibbs

This criticism can't be applied to my noble editors, but I think it applies to Prodigy rather well.

You see, a couple of years ago, Prodigy made a big mistake. Its blunder was to decide to moderate the contents of its service. If it saw words such as #@&*, !@%! or !@#$%^&*+=! (or even !@*!-@&#@), it removed the offending message.

While many people complained that Prodigy was goose-stepping all over their rights, the reality was that:

■ Prodigy's service belongs to the company, and it can set the rules.

■ Anyone who didn't like the rules didn't have to use the service. Even though it has every right to censor, this is not a good idea.

But Prodigy's biggest mistake was using this "we run a tight and clean ship" positioning as a marketing tool. It actively promoted itself as equally suitable for little Jimmy or your 97-year-old grandmother.

The reality is that Prodigy's editorial control isn't that different from other on-line service providers (just try to post a message containing the word #*!@ in the majority of forums on America Online or CompuServe). Prodigy just chose to make a big thing out of it.

All went quiet on the "how dare Prodigy play censor" front until a message was posted in a Prodigy forum called Money Talk that a stock brokerage firm called Stratton Oakmont, Inc. took grave exception to.

The fun-loving firm Stratton Oakmont claimed that the message was libelous and a judge in the state Supreme Court in Long Island agreed.

But what has got lots of folks really fired up is that the judge decided that as Prodigy exercised editorial control, it was liable. The judge figured that Prodigy acted more like a newspaper than a bookseller.

When you consider that users post more than 70,000 messages each day on Prodigy, the idea that it has any real level of editorial control is ridiculous.

The fact that Prodigy detects #$!@ and !@*& in messages and takes action is not really a true editorial function. It is more like a bookseller deciding not to stock certain books for *whatever* reason it chooses.

It seems to me that Prodigy has been hoisted by its own marketing petard. If it hadn't tried to kick America Online's and CompuServe's marketing butts (we might have to edit that word out-Ed.) over the clean and wholesome thing, there might be happier people there today.

Anyhow, Prodigy is appealing the judgement and is supported by just about everyone in the on-line industries (a mass outbreak of "there but for the grace of the gods of communications go I").

This mess raises two issues. The first is that editorial control as a general-service principle is as ludicrous as it is impractical. But on the other hand, there is a real need for forums and conferences that are suitable for children and those who don't want to see the words %&*# or !!@#.

I hope Prodigy does win the appeal. In the mean time, Prodigy and every other service provider needs to think very carefully about how they control content.

Prodigy, we wish you !@##@!% good luck.

Gibbs is a writer and consultant based in Ventura, Calif. Send your comments on editorial control to mgibbs@gibbs.com or call him at (800) 622-1108, Ext. 504.

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Can you give me some tips on how to calm down an irate help desk caller?

Gupchand Badrl, Branchburg, N.J.

You can follow the 11 steps for handling angry or irate callers that are outlined in the book *How To Handle Difficult Customers* by Gary Case and Patrice Rhoades-Baum (1994, The Help Desk Institute).

In short, let the caller vent his anger without interruption and take notes as you listen. Repeat the caller's problem as stated to you to verify you understand the situation. Do not paraphrase. If you get it wrong, the caller will get even madder. Verifying is your first opportunity to get the customer to agree with you.

Then empathize and work with the caller to develop a plan to fix the problem. Callers are more apt to buy into a solution if they have input. Finalize the plan by getting agreement to it from the caller.

Then, apologize in a sincere tone of voice. If you do not sound sincere, you can destroy everything you've gained up to this point.

Finally, conclude the call. Make sure you take a few minutes away from your desk for a quick break before you take the next call.

The book costs $6.95 for Help Desk Institute members and $9.95 for nonmembers.

The Help Desk Institute: (800) 248-5667.

We're trying to decide whether to attach our company's Macintoshes to our IBM AIX Ethernet network or to our token-ring network, which has an OS/2 Warp server.

M. Jayakrishnan via the Internet

There's a small problem with going to token ring, says Kee Nethery, an engineer at Kagi Engineering, a Berkeley, Calif., consulting company. Token-ring cards for the Macintosh often only have AppleTalk or IP drivers.

If your OS/2 Warp machine uses other protocols, you may have more options in going with an Ethernet card for the Macintosh because they support many more drivers.

Building applications component by component

Release of Visual Basic Version 4 should accelerate acceptance of component architecture in the corporate community.

By Bill Burke

Component architecture has paved the way for internal corporate programmers to quickly and easily create and modify unique business applications without investing millions of dollars in proprietary software.

Component-based solutions, including Microsoft Corp.'s OLE controls and Visual Basic Extensions (VBX), let users design applications that address their business' or customers' needs.

Component architecture combines affordable, highly specific solutions with the plug-and-play reusability associated with object-oriented programming.

Within a component architecture, there is no need to program in C. Rather, this high-level development environment employs a visual interface, pull-down list boxes and reusable commands.

Many applications can be developed with just a few dozen lines of code, and most components can be integrated with other technologies, including imaging, telephony, voice recognition and workflow.

The release last month of Visual Basic Version 4 software should accelerate the environment's broad acceptance in the corporate community, particularly for developing client/server applications. As acceptance increases, the use of components will become even more widespread.

Mix and match

Thousands of organizations already are deploying component-based solutions. Insurance companies use component architecture to revamp how they process claims.

Financial services firms combine this architecture with imaging solutions to streamline the approval process associated with writing mortgages. Some companies are incorporating voice response and fax-on-demand, while others are developing expert systems.

Off-the-shelf components, which are available from more than 100 vendors, are designed to help build applications fast. The most popular component type is the VBX, which established the market in 1990 and remains the pacesetter. VBXs typically enhance the capabilities of Visual Basic by executing a discrete task or providing integration with another piece of equipment, such as a scanner or CD-ROM jukebox.

VBXs add functionality to Visual Basic through a simple point-and-click interface — clicking a button triggers the code that is attached to it. This makes time-consuming commands, such as incorporating an approval process or scanning a document, easy and fast.

Technological easements

To write an application, programmers merely need to draw a development form or program window on the screen and add controls with the user interface. For example, they can incorporate rotation and bar code recognition in an imaging application through pull-down menus and by adding some simple commands.

Component architecture has become a mainstay in imaging and other complex technological fields. Diamond Head Software, Inc., for instance, has developed a suite of VBXs to support the many phases of creating customized production-level document imaging applications. Many vendors of proprietary systems, such as Wang Laboratories, Inc. and FileNet Corp., have begun using VBXs to incorporate open extensions in their products.

Several leading development environments, including Delphi and dBase from Borland International, Inc., recently have been enhanced with support for VBXs.

Consequently, users can now combine high-level front ends such as Delphi and Microsoft's SQL Windows with back ends such as SQL servers from Microsoft, Oracle Corp. or Sybase, Inc.

Pushing the envelope

Like other component types, VBXs are written in C to ensure high performance. At the same time, the high-level visual environment shields the developer from the intricacies of C. This means programmers can operate in an easy-to-use visual environment, even when working out complex application program interfaces.

With Visual Basic 4.0, users will be able to incorporate the next generation of controls — known as OLE custom controls — in multiple desktop applications, as long as the applications support Microsoft's Visual Basic for Applications.

This is one of the most significant features of Visual Basic 4.0, facilitated by its support of 16- and 32-bit applications, because common functionality could be accessed from Visual Basic 4.0 as well as from a range of desktop applications, including Microsoft Access, Excel and Word.

Most component developers will ship their first OLE custom controls later this fall, and many vendors will support them by early 1996.

At the same time, component vendors are moving toward one of two development standards: the Object Management Group's Component Object Request Broker or Microsoft's Component Object Model. While a single standard isn't likely for the next several years, the foundation is being laid for more straightforward, component-based development that uses new design and coding practices.

Benefits for IS

In less than three years, components have moved from a marginal option to a major technology, poised to overtake proprietary systems.

Applications that are component-based have proven to be more economical to develop and maintain, faster to program and easier to use than most traditional applications.

Moreover, IS divisions gain their own source code, which can be shared across the network.

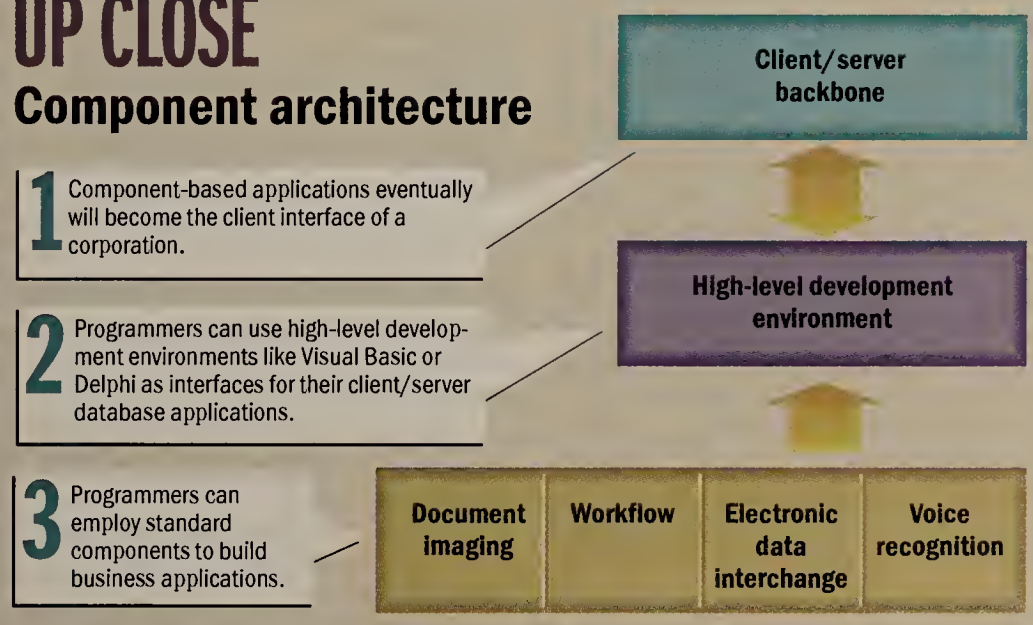
Discrete modules of the code can be modified relatively easily, typically with just a few days' work. This makes maintenance more feasible and could possibly raise productivity.

The VBX market — nonexistent just a few years ago — is estimated at $100 million today, and analysts predict it will reach $1 billion by the year 2000. It may be time to start integrating component-based solutions into your IT strategy.

Burke is president of Diamond Head Software, Inc., a Richardson, Texas-based developer of programming tools for document imaging applications.

UP CLOSE

Component architecture



COMMENTS?

See "How to reach us" on page 5.

EDITORIAL INSIGHTS

VLANs: Simply troubling

At a roundtable interview last week, we got the top executives of some of the largest network suppliers — Bay Networks, Cabletron, Cisco — talking about customer needs and where the network industry is heading.

The heads of these billion-dollar companies agreed on one point: Network vendors must make their products easier to install and manage so customers — whose budgets and staff are finite — can deal with the explosion in network usage and network-oriented applications.

Yet, while they talk about the need to simplify networking, these vendors are willing to put you through a trying time as you implement virtual LANs across your switched nets.

Don't get me wrong: These companies — and others like them — will pitch interesting solutions for VLANs that promise to solve a lot of your net administration problems. That's fine, if you're willing to embrace a single-vendor network architecture and give one supplier that much control over your network. But buying into one company's VLAN strategy and products is not a commitment to take lightly.

If you're not ready for that kind of commitment, you're going to face big headaches trying to get incompatible, vendor-specific VLAN schemes to work across diverse equipment.

Most vendors aren't pushing hard for standardization — they claim the best approach will win out.

Sure, ultimately. But the last thing customers need is a technology battle with all the attendant risks of choosing the wrong approach, trying to figure out which consortium of vendors backing which VLAN approach will prevail or being forced to shotgun-marry incompatible solutions. That can't help buyers or suppliers; it will slow the adoption of switching and VLANs.

The ATM and frame relay communities have shown that vendors can work effectively outside the traditional standards process to overcome interoperability problems.

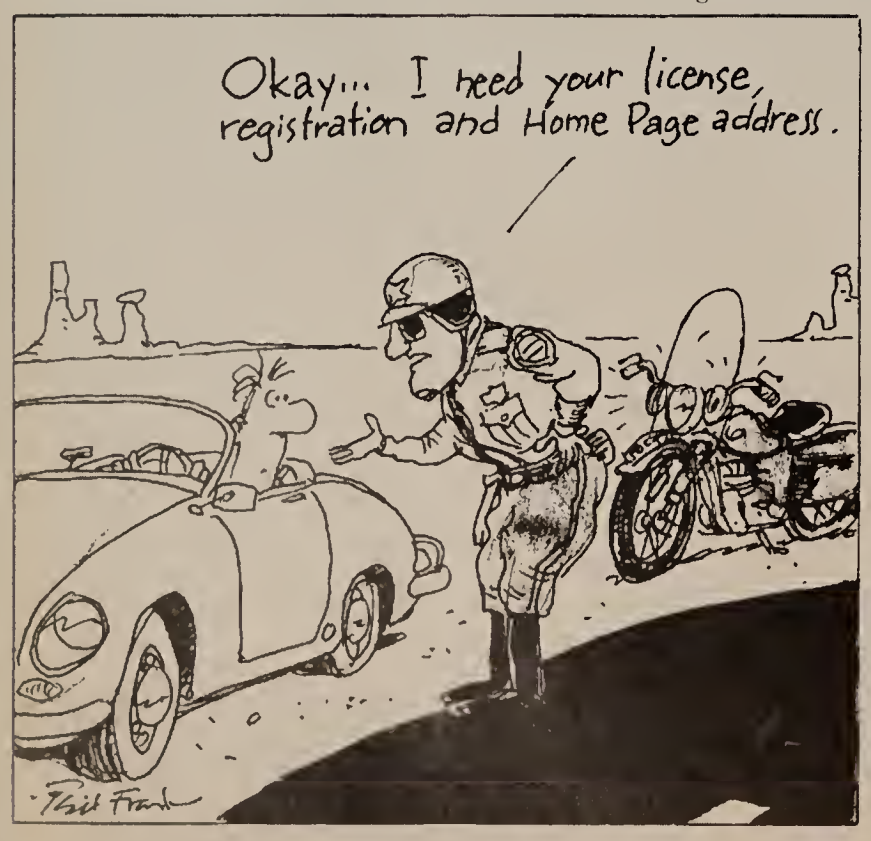
The top networking companies have to step up to the responsibility of resolving this VLAN standards issue soon. They have to make it simple for customers by competing on the basics: price, depth of product line, quality, and service and support.

Simply put: Don't put us through another religious war about technology. That's too hard.

John Gallant, editor in chief jgallant@nww.com

Teletoons

By Phil Frank and Joe Troise
guru@well.com



THE BLUE VIEW

IBM offers a paper tiger instead of a switched virtual network plan

Anura Gurugé

Given its oft-avowed belief in the future of Asynchronous Transfer Mode (ATM), IBM clearly needed some type of framework to articulate how its various ATM and LAN switching products can be synthesized to create the next generation of networks. However, IBM's recently announced Switched Virtual Networking (SVN) is far from comprehensive and consequently fails to be immediately compelling (Sept. 11, page 1).

SVN is IBM's ATM-centric blueprint for the implementation and management of switched networks. Its goal is to provide a scalable switching fabric for any-to-any, end-to-end connectivity with one-hop routing and guaranteed quality of service. SVN will also endeavor to protect your existing investment in networking equipment. As such, SVN is a relatively credible, high-level framework — architecture being too strong a word for it — that identifies the functions and services required in switched networks and how they interact with each other.

IBM excels at producing plans such as this one, but it has problems translating specifications into actual systems. This will be the acid test for SVN. Will IBM be able to deliver against it?

Ironically, the SVN announcement was accompanied by a statement that the release of IBM's 8272 Token-Ring LAN switch, an integral component of the SVN strategy, will be delayed. This is not an auspicious start.

With SVN, IBM categorically states that ATM is the "end game" in contemporary networking.

The core of SVN networks will be a backbone made up of ATM switches a la IBM's 2220 Nways broadband switches. Around this ATM backbone will be peripheral switches, such as IBM's 8271 or 8272, providing end-user access to the overall switching fabric.

ATM is the very soul of SVN. With SVN, IBM categorically states that ATM is the "end game" in contemporary networking. But when will ATM be a reality to IBM's transaction processing-oriented, SNA-based commercial sector customers?

SVN is not a new or unique concept. If anything, most of the other leading networking vendors have already beaten IBM to the punch with their models. These include Cisco Systems, Inc.'s CiscoFusion, Bay Networks, Inc.'s Bay Networks Switched Internetworking Services (BaySIS) and Cabletron Systems, Inc.'s SecureFast Virtual Networking.

SVN is a bold step in the right direction. However, it does not adequately address these crucial areas: multivendor interoperability, migration of routed networks and SNA assimilation.

Multivendor interoperability is the Achilles' heel of all ATM-oriented switching frameworks. The problem is there are no industry or de facto standards to facilitate such interoperability. Customers have to make a leap of faith — trusting IBM to deliver all the goods — and commit to adopting a predominantly IBM networking fabric.

Bridge/routers and multiprotocol internetworking have captured the minds and networking budgets of the IBM community. Cisco, Cabletron, Bay and 3Com Corp. are playing an increasingly significant role in IBM networking. Given this move toward multivendor networking, SVN is unlikely to garner a wide following until IBM addresses multivendor interoperability and gets a few other vendors to support SVN.

In addition to pinning all its hopes on ATM, with its announcement of SVN, IBM also postulates — possibly with a twinge of sour grapes given IBM's singular lack of success in this arena — that large centralized routers and router-based networks are now passé. With SVN, IBM intends to distribute routing functions such as destination identification, optimum route selection and protocol transformation, as well as move certain routing functions to the desktop. SVN, however, does not spell out how you should migrate from today's router-based networks to SVN's distributed routing approach.

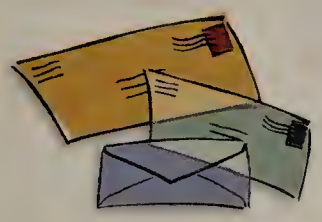
The lack of a migration path for bridge/router-based networks is in a sense an extension of the multivendor problem, given that most of today's router-based networks tend to be non-IBM based. Just dismissing routers is not acceptable. Routers currently dominate the networking scene, and many of you still consider them strategic. SVN has to provide a thorough, cost-effective and persuasive strategy that shows how existing router-based networks can switch to SVN.

The last major omission in SVN is its support for SNA and the integration of SNA into an SVN network. SVN, to be fair, makes some references to this, centered around APPN on the mainframe, ATM interface to the mainframe and High Performance Routing (HPR) across the WAN. But that is not enough. APPN still is not widely accepted. Plain SNA rules supreme. And HPR is still not available on any peripheral devices, such as PCs, AS/400s and 3174s. Moreover, there is now some talk that HPR's supposed state-of-the-art anticipatory congestion control mechanism may be too slow to react at speeds beyond 45M bit/sec. Since most of you consider 155M bit/sec the starting point for ATM in the wide area, this issue is already placing a question mark against HPR as it relates to ATM.

An ATM interface to the mainframe is another thorny issue that IBM has yet to grasp. Today, the fastest speed at which a mainframe input/output channel can run is 136M bit/sec. To accommodate 155M bit/sec ATM, IBM must increase the throughput of its channels.

So here's the bottom line with SVN: It is a good first pass at a high-level blueprint for IBM-based switched networks. There are, however, some key areas that it does not address. Until IBM gets around to doing this, you should view SVN as a paper tiger.

Gurugé is an independent consultant specializing in internetworking and IBM network architectures. He can be reached at (603) 878-1303 or via Internet/MCI Mail at agurugé@mcimail.com.



IN-BOX

The wrong impression

A Datapro Information Services Group analyst was recently quoted in a *Network World* article focusing on UB Networks, Inc. (Aug. 21, page 8). As the comments in this article did not reflect a comprehensive view from Datapro, I would like to clarify our perspective and clear up any confusion the article may have caused.

UB Networks is a $400 million company with a loyal installed base of more than 60,000 intelligent hubs. Having played in this industry for more than 15 years, the company has had its ups and downs. However, after meeting with company officials recently to discuss their strategies and future product road map, we think they are in a better position to offer competitive solutions. We stand by our published report "LANs & Internetworking Series" profiling UB's networking product line, market share and marketing strategy.

The report summary states: "While continuing to enhance the capabilities of Access/One, UB has channeled its expertise into the creation of products based on the most advanced technology to date. In May 1995, UB Networks broke through technological barriers with the GeoLAN/500, an ATM hub equipped with the following features: throughput capacity of 10G bit/sec, distributed network management capabilities, an ATM migration path and a complement of nonstop performance functions."

Today, all of these products are shipping, and initial user reaction appears strong. Clearly, the markets for Ethernet and ATM switching are exploding, and "marketectures" aside, UB Networks has presented products to take advantage of this growth.

A.J. Dennis
Vice president, research and analysis
Datapro Information Services Group
Delran, N.J.

Cisco's Combinet purchase

I was surprised that Cisco Systems, Inc. bought Combinet, Inc. (Aug. 14, page 8). I had always hoped that Cisco would survey the market and realize that very little distinguished their low-end Basic Rate Interface ISDN products from cheaper products offering more functionality.

The only thing the Cisco 2503 remote access router has going for it is the Internetwork Operating System routing software. I mistakenly thought that Cisco would realize that if it reduced the price of its software, thereby reducing the cost of a 2503, it could compete directly with small ISDN vendors.

For existing customers with Cisco's AGS+, 7000 or terminal servers, Cisco could provide a cheap small or home office solution where Novell, Inc.'s IPX or TCP was not the dominant protocol used by the organization.

But I was wrong. Instead of developing its own market, Cisco has chosen to buy its way into the small or home office market. The real value of the Cisco purchase of Combinet will only be realized when Cisco incorporates its full suite of routing protocols into these low-end machines for a small price or restructures the packaging of protocols.

For example, they could give away the first two protocols for free and charge $250 each for the next two.

Raymond Jacob
Computer specialist
Naval Computer and Telecommunications Station Washington
Washington, D.C.

Continuing the OS/2 vs. Windows debate

OS/2 fan rebukes criticism

Life is filled with regrets. My regret is that I didn't send my congratulations on your recent comparison of OS/2 Warp Connect and Windows 95 (Aug. 21, page 43). It was absolutely the best comparison of the two systems I have yet seen, and I read dozens of trade publications. It is a subject of much interest to me.

Your article cut through a lot of fog, and I am an OS/2 fan and an almost pathological critic of Windows.

I was astounded at the vehement attacks on your review by other OS/2 aficionados. In my opinion, OS/2 fans need not be quite so defensive. As an OS/2 groupie, I was shocked at the letters. And I was impressed with your answer.

There are a few differences I found with your article. I copied my NetWare 3.26 directory from my workgroup server to the OS/2 Warp machine, invoked IPX, then NETX, and I was on the LAN. And it is a faster workgroup server than I have ever known. As far as I know, I am not using any OS/2 Warp drivers, but I may be. OS/2 Warp Connect doesn't seem to require that I know that.

You said that OS/2 Warp Connect didn't recognize your Tseng Laboratories, Inc. card. It installed a Tseng driver automatically for me.

I thought your review was balanced and that it was the most informative of all the reviews I have read to date.

Fred Tims
Vice president of product development
Nonstop Networks Limited
Utica, N.Y.

Some technical clarifications

Regarding your recent article comparing OS/2 Warp Connect and Windows 95, I feel compelled to offer just a few technically related comments.

First, it's no mystery that both OS/2 Warp Connect and Windows 95 offer some sort of preemptive multitasking. DOS programs must be multitasked preemptively under Windows 95 because they would never relinquish control of the CPU by themselves due to their single-tasked nature. The critical difference between the two operating systems with respect to preemptive multitasking is that OS/2 Warp Connect uses a priority scheduling approach rather than the time slicing approach Windows 95 uses.

This arrangement is much more intricate and efficient than simply allocating slices of CPU access time to multiple applications running concurrently. In short, programs that must have guaranteed access to often scarce CPU resources will operate more effectively under OS/2 as the operating system dynamically manages CPU access based on priority levels.

Secondly, OS/2 Warp Connect is far superior to Windows 95 with respect to management of RAM. OS/2 Warp Connect uses Intel Corp.'s flat memory access capability, which dates back to the 80386 CPU. Because there are 32 address lines between the CPU and memory, and because OS/2 Warp Connect uses flat memory access, the operating system can directly address up to 4G bytes of RAM. Windows 95 uses Intel's less effective segmented memory model. Consequently, some type of foreign software must intercede on behalf of the operating system.

Finally, on a more software development issue, IBM's System Object Model (SOM), used in OS/2 Warp Connect, is more proven and scalable than Microsoft Corp.'s Common Object Model (COM), used in Windows 95. Besides being nonproprietary, SOM is language-neutral and fully compliant with the Common Object Request Broker Architecture (CORBA). On the other hand, COM is a proprietary platform and not CORBA-compliant. Further, COM fails to provide a single programming model for distributed and local objects. From a developer's viewpoint, OS/2 Warp Connect is much closer to the ideal environment for object-oriented development than Windows 95.

In response to the authors' concerns about running Windows 3.X applications under OS/2 Warp Connect, it is apparent that similar problems will often be encountered in a single Windows-OS/2 session. However, if the Windows-OS/2 session fails, I can have OS/2 Warp Connect close the session without taking my acess to the CPU with it.

Under Windows 3.X, I would often have to reboot and reestablish all lost network connections, communication links and the like.

Unfortunately, I must concur with the authors' complaints about installation problems. Although IBM has significantly amended the installation process, there is clearly room for improvement.

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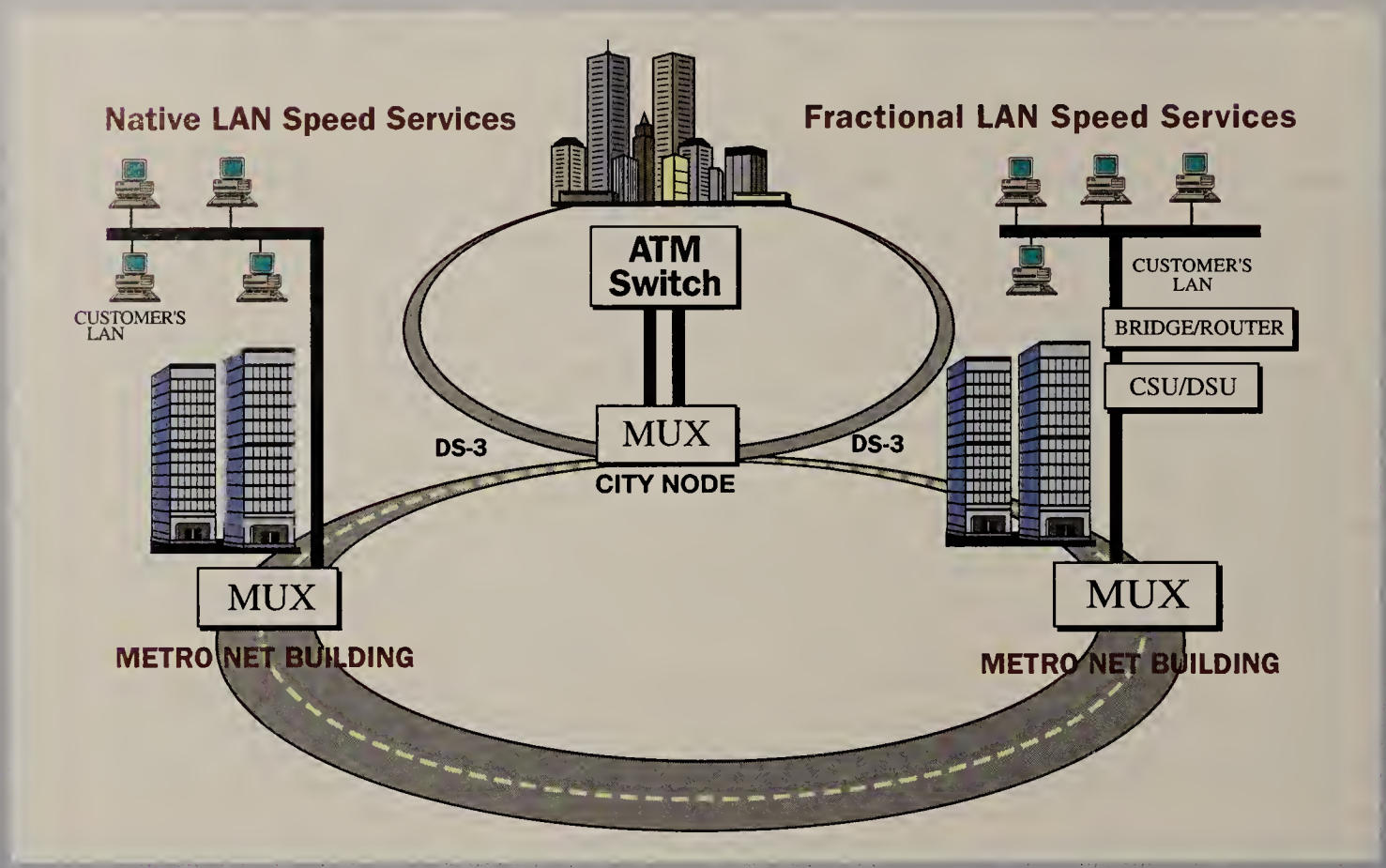

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World TEST ALLIANCE

Trouble ahead? Call the help desk

We found three low-priced packages with some high-end features, but most leave help desk staffers wanting more.

By David Rorabaugh

Does your help desk need help? We checked out three help desk packages that all purport to be the answer to your needs and found some key differences that boosted one of them above the crowd.

Intel Corp.'s LANDesk Response, McAfee's LAN Support Center and Opis Corp.'s Support Express are representative of the first tier of internal help desk products. All three support the standard trouble-ticket metaphor, provide built-in reporting capabilities and are targeted at small to midsize businesses for internal support.

LANDesk Response Version 1.0 is the simplest of the products, meaning it lacks key features such as sample data, guidance on creating a folder hierarchy or the ability to create closed trouble tickets. Support Express Version 2.6 is the most complex of the trio, but its manual entry of problem type definitions and desktop configurations are too cumbersome. LAN Support Center Version 3.01 offers the best mix of features, performance and power. It places all trouble tickets in a common pool, provides excellent reporting and integrates well with the vendor's other management applications.

NetResults

Product	LANDesk Response 1.0	LAN Support Center 3.01	Support Express 2.6
Vendor	Intel Corp. Network Products 5200 N.W. Elam Young Parkway Hillsboro, Ore. 97124 Phone: (800) 538-3373; (503) 264-7354 Fax: (800) 525-3019; (503) 264-6385 Internet: http://www.intel.com/commnet/sns/	McAfee 2710 Walsh Ave. Santa Clara, Calif. 95051 Phone: (800) 866-3832; (408) 980-3696 Fax:(408) 970-9727 CompuServe: GO MCAFEE	Opis Corp. 1101 Walnut St. Suite 350 Des Moines, Iowa 50309 Phone: (800) 395-0209; (515) 284-0209 Fax: (515) 284-5147
Philosophy	Tickets grouped by folders.	Tickets stored centrally; can be sorted or filtered.	Tickets stored centrally; can be sorted. Distributed notification options.
Databases	Paradox Engine	Btrieve	FoxPro
Key findings	▶ Installation is inflexible and not network-aware. ▶ Contrary to documentation, administrators must create a user account for each supported user. ▶ Users can't generate closed tickets in a single step. ▶ No capacity to manage custom report files on a network. ▶ No integration with Intel's LANDesk Management Suite's databases.	▶ Tightly integrated with other McAfee products. ▶ Problem type definition is easy. ▶ Bundles Crystal Reports.	▶ Learning-based ticketing aids help desk staff. ▶ Weighting and experience factors complicate definition of users and problem types. ▶ Provides automatic ticket review on startup, but with cumbersome interface. ▶ Offers weak internal reporting, but includes FoxPro report writer for custom reporting. ▶ Excellent broad-based integration support.
Pricing	Single user $995 4-user license $2,985 20-user license $9,950	Single user $999 5-user license $3,999	Single user $2,995 5-user license $6,995 Site license $40,000

Philosophy

One of the most difficult steps in implementing any new help desk system is determining how to organize or categorize trouble tickets — for example, by user, application, physical location or organizational unit. Each scheme has its strengths and weaknesses.

This is a decision you need to make independently of the product you choose, but some systems present a greater level of adaptability than others.

LANDesk Response uses a hierarchy of folders for trouble tickets. With no sample data, you are left to decide folder structure and create the required folders. Possible schemes might have problems segregated by application, workgroup or support team. Unlike the others, Intel logically stores tickets in separate folders, which can make for some hide-and-seek confusion when trying to find specific tickets, especially if they are misfiled.

LAN Support Center places all the tickets in a common pool, making it easy to see everything in a single view. This may be more effective for managers, but the actual support staff, particularly specialists, may prefer LANDesk Response's more segregated arrangement. LAN Support Center made it easy to find tickets based on assignments, however, so if tickets are properly assigned, help desk staff should have few problems identifying their assigned tasks.

Support Express goes furthest

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in this regard. With the optional ExpressLink add-ons, it supports electronic mail notification when new problems arise. When help desk staffers log on to Support Express, they sees a list of assigned actions for immediate attention without having to enter and query the database.

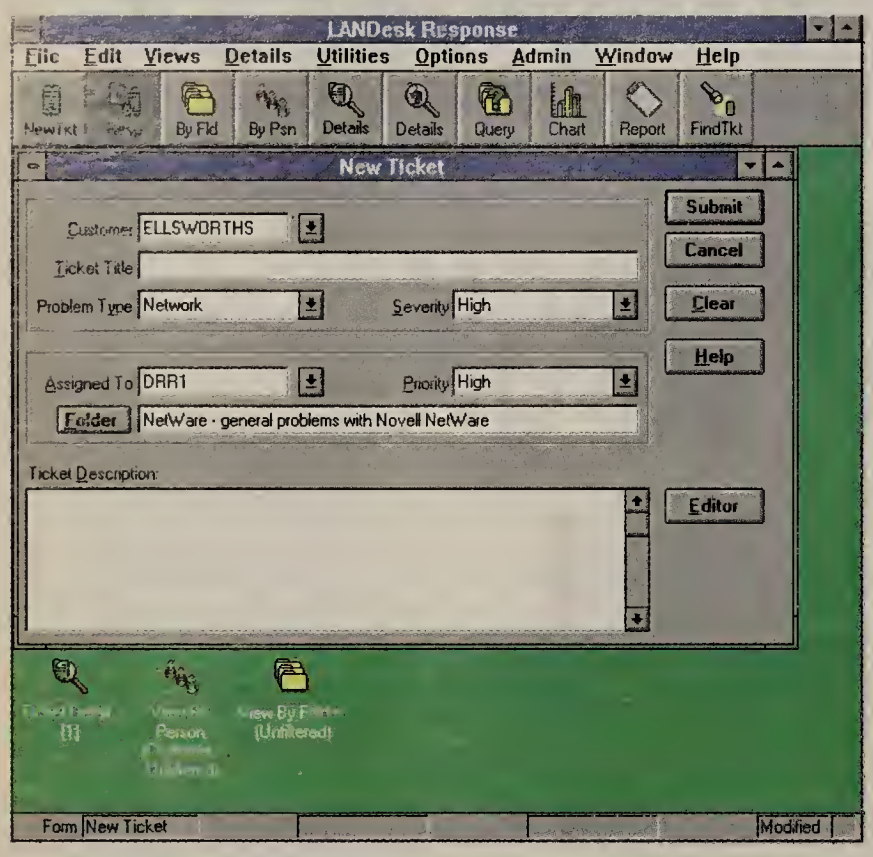

Figure 1: *LANDesk Response's trouble-ticket interface is simple and clear, but it doesn't allow help desk staff to enter a closed ticket.*

Internally, however, all the actions in the database are presented in a single list, subject to sort or filter.

Administration

With all the packages, an administrator must perform some level of setup to define users, problem types and so forth. Each of the three systems maintains its own file of users and accounts. That means an initial step of entering data about the users whose problems are to be tracked as well as defining the problem types and other data. This is a huge administrative burden.

With users, products and folders set up, you can get right into the key components of each product — the trouble tickets themselves.

Intel has an undocumented and unadvertised utility that will extract the users from the NetWare bindery into LANDesk Response, but it won't read from the existing LANDesk Management Suite database, which will draw from either the bindery or NDS. The file, BINDRY.EXE, is available at http://www.intel.com/comm-net/support/selfhelp/0ldp.html, or in CompuServe's Intel forum in Library 4. The others require administrators to import the user database from another source, if available, using standard database tools; there's no bindery or NDS integration.

LANDesk Response's documentation states that administrators must create a person document for each user who will report, enter or respond to problems. This is incorrect, however. You actually have to create a person record for each user for which you will track problems — a much more odious task. Defining problem types is not complicated, but administrators need to be sure they're in the right folder or else they can't assign tickets properly since the assignments are made by folder, not specifically by problem type.

Defining users and problem types in LAN Support Center took the least time to complete of the products we looked at, thanks to LAN Support Center's flat problem type structure. LANDesk Response and Support Express use a hierarchical structure.

Setting up users in Support Express was simple. However, Support Express has the most complicated problem type definitions, mainly because of the unique weight and experience factors, which help to define the relative priority of the call and the user's experience level in this area.

More difficult, and less clear as to purpose, is Support Express's product list, which lists the hardware and software installed on each user's PC. The list is manually chosen from a defined list and added to the user record. In our evaluation, this single step was the most time-consuming, and the benefits were never clear, especially since the information could be out-of-date following an unrecorded hardware or software upgrade. If this information was automatically inserted by an inventory system, its inclusion would be worthwhile, but we found it too cumbersome.

Ticketing

With users, products and folders set up, you can get right into the key components of each product — the trouble tickets themselves.

In LANDesk Response, tickets are assigned based on the folder in which they are created (see Figure 1). In most cases, you are limited to the predefined values for each folder. LANDesk Response was also unique in not allowing the creation of a closed ticket; you must create a new ticket and then create a separate response action to close it. While this presents the clearest method of the three products for tracking multiple responses to a single problem, it also limits the ability of phone support staff to quickly record problems for which they had an immediate solution.

With LAN Support Center, you cannot create new problem types on the fly. Even if you have the rights, you must discard a trouble ticket and perform the administrative function separately with a different menu, then start the ticket over with the new data.

However, with most other fields — such as the user field — you can add new entries as you go (see Figure 2, page 50).

Support Express had the most complicated ticketing process, in part because it serves up the greatest number of entry fields on the trouble ticket (see Figure 3, page 50). Creating trouble tickets is easier if administrators have already defined users and problem types since doing this on the fly adds a great deal of complexity to the ticketing process.

Support Express was also unique among the products we reviewed in automatically searching prior trouble tickets within the same problem category and type for a match based on keyword identification. As your database grows, this feature presents possible solutions to new problems. But this requires a high level of discipline to enter and categorize all tickets the same way.

Ticket management

Since LANDesk Response users cannot create a closed ticket in a single action, the review process is more critical in LANDesk Response than in other products, to prevent closed calls from staying open unintentionally. On the positive side, this ensures a complete review of all tickets; on the negative side, it requires it.

In LAN Support Center, tickets can be assigned or left unassigned. That leaves room for a management role in quality assurance in terms of verifying that work is progressing and in making assignments of unassigned tickets. Tickets are displayed in a clear and easy-to-understand list, and checking progress or making assignments is simple.

Support Express makes managing tickets easier. When starting the program, even before getting to the ticketing module, you are presented with a list of open jobs for review. This novel approach to progress tracking makes the review process a priority but is effective in only presenting those jobs that actually require a review.

This helps users who both enter and review tickets, as well as makes the manager's job more straightforward. However, this is also an area where the product's FoxPro heritage haunts users. The user interface for this module is function key-based, with key definitions printed in a legend across the bottom of the window. This shade of DOS applications may scare users who are committed to a Windows environment.

HOW WE DID IT

We tested each of the three products In a variety of environments, including Windows 3.1 and Windows 95, NetWare 3.11, and NetWare 4.1 clients and servers. None offered integration with NetWare, rendering the issue of bindery vs. NetWare Directory Services moot.

We created a variety of user types, problem types and trouble tickets to evaluate the way that the products would sort, filter and manage the data. We rated the built-in reports on their value and benefit to support staff and management. We also weighed the custom report features on their power, programmability and ability to perform complicated custom report functions.

Win95: Red flag

Our testing under Windows 95 yielded mixed results. All three products installed under Windows 95, but operability varied. Intel Corp. specifically states that LANDesk Response does not support Windows 95, but we were able to run it, although it looked ugly and behaved a bit oddly. Intel could not specify when it would offer Windows 95 compatibility. Support Express showed only a few minor cosmetic flaws related to the interface changes. LAN Support Center's Btrieve requirements were impossible for us to meet in the new environment but have worked for other users.

Early adopters of Windows 95 should talk to vendors about compatibility issues prior to purchasing any product.

Databases

All three products store ticket and other information in standardized databases. While only LAN Support Center ships with a third-party reporting tool — an evaluation copy of Crystal Services, Inc.'s Crystal Reports — the other applications also give users the option to customize reports.

LANDesk Response is a Paradox Engine application and may require care in configuring at sites already running Paradox or other Paradox Engine applications. The installation program was smart enough to notice the actual location of the necessary configuration files on our system, even when this information was missing or incorrect in our WIN.INI file.

LAN Support Center uses Btrieve as its database engine. While this is more complicated in that it deals with server-based NetWare Loadable Modules (NLM), it is still relatively open, and third-party report writer tools tend to be of excellent quality. McAfee bundles Crystal Reports with LAN Support Center; the combination should be adequate for all but the most demanding and esoteric reporting needs.

Support Express data is in Microsoft FoxPro format. It is the only product we looked at through which users can gain access to the original development environment and documentation because the FoxPro run-time module, which used to

Continued on page 50

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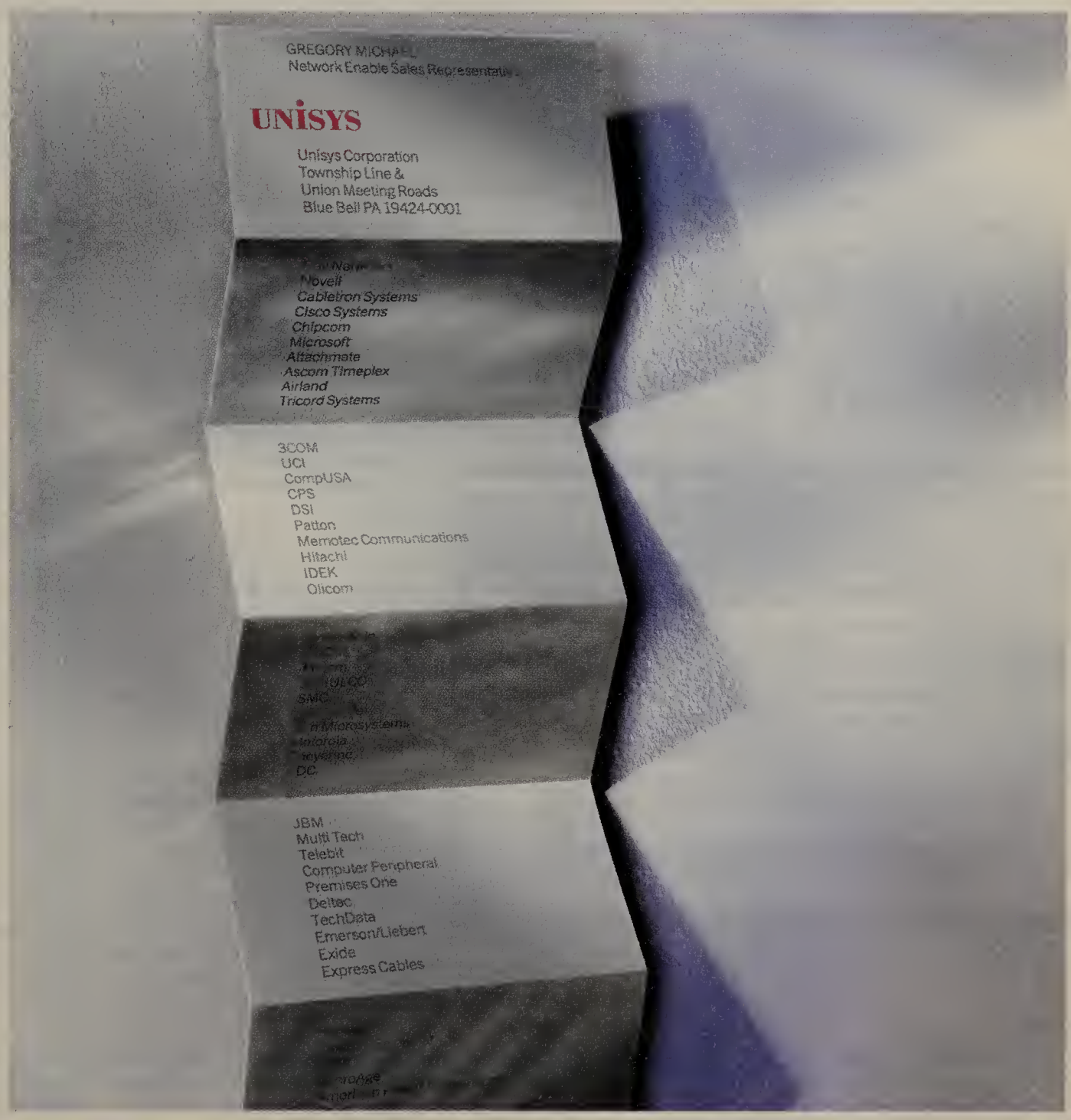

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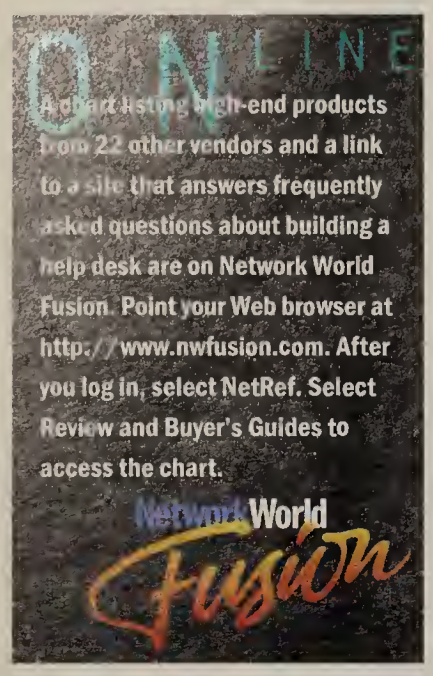

be called the distribution kit, is bundled with the product.

One note on the initial contents of the databases. LAN Support Center and Support Express both ship with several sample tickets, problem types and users already entered in each data type.

We found this aided immeasurably in the configuration of each product by providing real-world examples of many fields' intended use and showing how elements work together. LANDesk Response provides no sample data.

Figure 2: *LAN Support Center places all trouble tickets in a single searchable folder. Ticket details include dates opened and closed.*

Reporting

Since all three products are based on standard database platforms, users can either view the built-in reports, charts and graphs, import data into another application or add a third-party tool to produce the exact format they want.

Of the three products covered, LANDesk Response provides the largest number of built-in reporting options. That can be misleading, however, since these are also the simplest reports of the products reviewed and may not be adequate for many specialized needs. While you can create custom reports in LANDesk Response, doing so is both poorly documented and limited in scope.

Additionally, the storage methods for custom reports may cause concern to many network administrators or help desk managers.

By default, LANDesk Response places its user directory on a local drive, and by default, all custom reports are personal rather than public. This means that users who employ multiple desktop PCs may create multiple versions of a similar report, and there is no central management of these distributed report definitions.

In addition, important files may not be accessible from a second PC.

LAN Support Center takes an extremely effective approach, providing an adequate number of built-in detailed reports, and providing Crystal Reports for rapid and easy access to custom reports.

Support Express provides adequate built-in reports, and its custom report features fill any gaps. Rather than bundle a third-party utility or create its own custom reporting module, Opis simply uses the Microsoft FoxPro reporting module and provides complete documentation.

While the documentation is almost entirely presented in its generic FoxPro form, any user with prior experience with a database report generator should have no problem generating reports. It's not as limiting as LANDesk Response and not as slick as LAN Support Center with Crystal Reports, but it's just as powerful.

Integration

Help desk tools need to work together as a cohesive whole. Modules such as inventory and remote control are critical in the ticketing and troubleshooting process. In a Windows environment, these do not need to be as integrated as in a DOS environment, but providing a mechanism for integrating the features of other applications is essential.

Intel claims LANDesk Response is integrating with the LANDesk Management Suite (LDMS), which provides inventory collection and remote control, among many other functions. However, the integration appears to be limited to allowing you to launch LANDesk Response from LDMS; LANDesk Response gains no access to LDMS functions.

That means there is no direct access to inventory information, and this is problematic. To get this level of integration, users must write a custom program in a Btrieve-compatible query tool to extract the data from the LDMS Btrieve inventory database and insert it in the LANDesk Response Paradox file. Cross-product extract and import operations can be complicated, and Intel does little to facilitate them here.

There is also no way to connect a LANDesk Response trouble ticket to an LDMS software distribution package, so administrators cannot implement event-based distribution with LANDesk Response.

LAN Support Center integrates well with other McAfee products, especially LAN Inventory and NetRemote. For example, in an installation that includes both LAN Support Center and LAN Inventory, the two products share a common database.

This saves a lot of administration workload, because information is automatically collected from users and workstations, and added to a new trouble ticket on creation. McAfee also provides the handy ability to launch its other applications, including BrightWorks management and SiteMeter license/metering products, directly from the LAN Support Center toolbar.

Opis offers the broadest support for integrating third-party products, including Horizons Technology, Inc.'s LANauditor and Tally Systems Corp.'s NetCensus, among others. Complete E-mail integration and a remote control link are also available. Support Express can connect to outside programs using a facility called ExpressLink. Most interesting is the available integration with Saber Software Corp.'s Saber LAN Workstation, from which Support Express can read the user information into its product sheets.

MARKET SHARING

McAfee recently acquired Saber, which currently leaves McAfee with marketing rights to both Support Express and its own LAN Support Center.

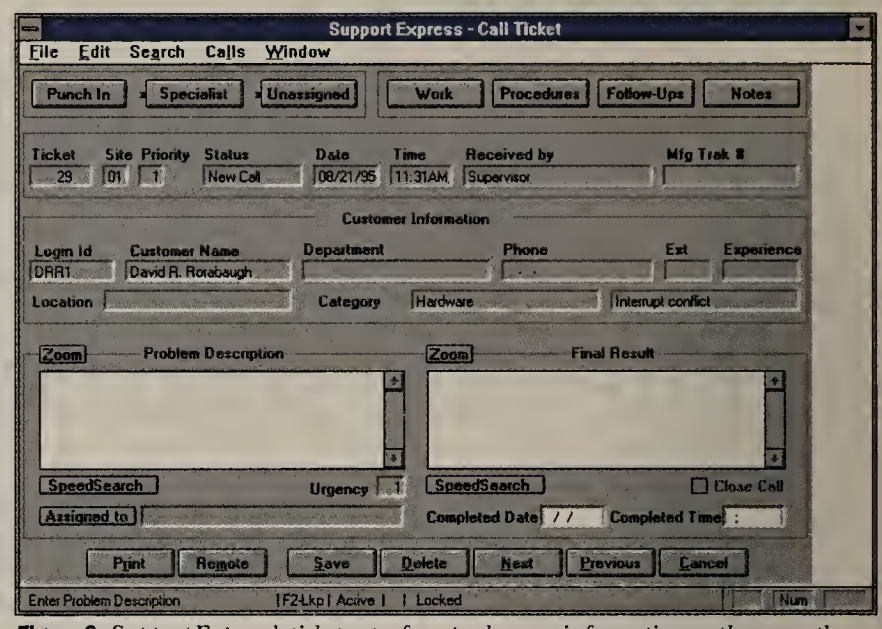

Figure 3: *Support Express's ticket entry form packs more information on the screen than the other products, but we found it more confusing.*

Installation of LANDesk Response was maddening. On the larger of our two test LANs, installation halted repeatedly when the program could not copy a file to the location it wanted.

The problem arose from two disturbing causes: The installation program failed to detect a network installation of Windows and insisted on trying to copy files to the \WINDOWS\SYSTEM directory, and it repeatedly tried and failed to either overwrite or skip an existing file. If this had been a purely local installation, we might not have seen these errors, but for network software to fail to properly support a network Windows installation raises serious concerns.

Installation of LAN Support Center was more straightforward. The install process offered control over the location of the installation, asked before modifying any files and allowed conflicting files to be skipped rather than terminating the installation process.

The program requires Btrieve Version 6.10c or above. The software comes preconfigured to work with the NetWare server-based Btrieve NLM and Btrieve Requester but can be reconfigured easily to work with the workstation-based Btrieve utility, as well.

Installation of Support Express was painless. No software updates were required, and all optional configuration changes were clearly explained.

Conclusions

Intel's LANDesk Response is a relatively simple, limited help desk package. With very weak integration with other products, even Intel's own LANDesk Management Suite, it is best suited for a small or specialized help desk, or one with limited needs that requires a thorough management review.

McAfee's LAN Support Center can handle a much broader range of organizational help desks and provides the easiest access to complicated reporting features.

Opis' Support Express provides the unique learning-based feature of searching prior trouble tickets within the same problem category that help it really shine in a larger or decentralized organization.

It offers the greatest flexibility in integrating with other products and sports a capable report generator. Smaller organizations may find some aspects of Support Express overwhelming, however, larger organizations should find the unique features compelling. ■

The alliance is a cooperative of users, consultants, educators and integrators that applies its technical and business skills to analyze and compare strategic network products. A list of alliance partners can be found on page 45.

Rorabaugh is a Novell Certified NetWare Engineer and a Microsoft Certified Professional. His book, Windows Connectivity Secrets *(coauthored by Runnoe Connally and Shel Hall), is published by IDG Books. He can be reached via E-mail on CompuServe at 76376,3423.*

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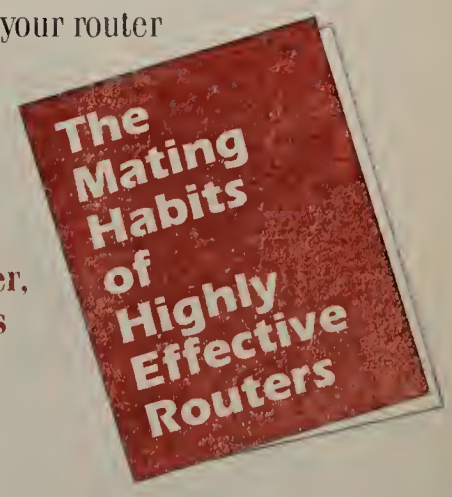

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Circle Reader Service #34

ATM

CARRIER INFRASTRUCTURES

Part Four

WHO'S RUNNING THIS NET *anyway*

Carriers have the tools to offer ATM management services, but most are in no hurry to roll them out to customers.

By Beth Gage

To visualize an ATM network management screen, think of an Irwin Allen disaster movie, with lots of flashing lights and a guy with a very worried look saying, "That can't be right."

It's not that Asynchronous Transfer Mode is flawed, it's just that when something goes wrong, it can go wrong in a big way. The failure of a single physical line can trigger hundreds of alarms as performance thresholds are exceeded for each virtual circuit the line supports. Every second counts, and sorting through the alarm muck can be a slow process.

But network management means more than just filtering and sorting alarms. It also includes configuring connections, tracking performance, accounting for usage and managing faults — all in a secured manner. If you have an enterprise ATM network to manage, you need a system that is easy to use and can be integrated into your existing network management platform.

ATM switch manufacturers understand all that and, for the most part, are delivering products with sophisticated management capabilities. The problem is that ATM service providers aren't yet implementing them in a way that fully exploits those capabilities. At best, they leave you with only a subset of what is possible and of what you need. At worst, customers have no network management options.

The service side

ATM service providers are installing platforms that can scale up to 40G bit/sec and beyond. As the customer base for ATM services grows, providers will have their hands full managing these nets.

Sophisticated net management tools are much more critical to the provider, since the provider of the public ATM service has responsibility for the quality and availability of the end user's network. Each connection in the net must be remotely manageable on an end-to-end basis from both a physical and logical standpoint. This includes setting and tracking the Qualities of Service parameters, collecting billing statistics, tracing a connection through the network, tracking and viewing performance, and receiving real-time alarms. The alarms need to be intelligently filtered and sorted so critical alarms are immediately identified and quickly resolved.

ATM network managers, whether service providers or end users, also need to be able to optimize the network. Fine-tuning an ATM network is becoming easier with new tools that extend beyond simple network performance statistics and alarm tracking.

Optimizing entails more than adding customer ports and bandwidth once switches are exhausted. Some network management systems optimize traffic flow by constantly monitoring and adjusting the buffering space in each network switch. Others provide statistics on the average and peak utilization for network planning through network modeling and optimizing software modules.

Service providers need flexibility to define connection profiles based on the service offering, scalability to support a very large number of connections and end points, and a solution for providing end customers with a secure on-line view of their networks. Eventually, users of public ATM services will have a subset of the management tools available from the service providers, as we have seen in the voice services camp.

A year ago, net management systems were as inadequate as the first-generation platforms they were managing. Today, it is a different story.

What it takes

For ATM management, most equipment vendors support the same basic features service providers are looking for, such as automatic rerouting around network trunk failures, point-and-click configuration and fault management capabilities. Nine out of 10 vendors will go so far as to describe their system as being flexible, graphical and easy-to-use.

The real differences lie in the approach that each vendor takes in building its net management platform — standards-based vs. proprietary, distributed applications vs. centralized management and so on.

Consider the issue of customer network management. Some equipment vendors work under the assumption that ATM service providers will need to give end users a great deal of network visibility and control. Consequently, they offer capabilities to partition the main network management platform.

Others take the stance that end-user network management will be controlled by service providers offering their own customer network management systems, and only a Simple Network Management Protocol interface will be delivered to the customer. Still others provide both options.

The baseline of network management system functionality includes flexible handling of alarms, which requires filtering and sorting based on any parameter — such as alarm type, severity, geographical location and customer.

Graphical interfaces are a must, with point-and-click end-to-end provisioning of connections a major requirement for easy configuration management. The system should be able to integrate with a standard network management platform, such as Hewlett-Packard Co.'s OpenView. The vendor also must have a plan for letting end customers manage their portion of the carrier's net.

Advanced net management systems include modules or options for network modeling and optimization, the ability to feed statistics into a billing system, automatic discovery of managed elements, alarm correlation and the recommendation of actions, as well as the ability to manage SNMP elements, regardless of the vendor.

Who's got what

Here's a roundup of how the equipment vendors are addressing network management for their ATM platforms.

Newbridge Networks, Inc. has been a leader in this area for many years. An advantage of its MainStreet 46020 is that it can handle all Newbridge's products, as well as any non-Newbridge SNMP elements. In addition to fault, configuration and performance management, MainStreet 46020 has components that allow service providers to simulate modifications to the network for optimization and

Continued on page 54

Continued from page 53

failure analysis. It also automatically discovers new elements in the net and adds information to the net configuration map.

The 46020 allows service providers to partition the service cloud so customers can view or modify their portion of the network. The management system then lets the provider designate different tool sets for different systems users; this allows the end customer to authorize the use of one tool kit for a net administrator, another for an operations manager and a third for a network planner.

LDDS WORLDCOM

Switches:
- NEC NEAX-61E
- StrataCom BPX

Net management product:
- WilView CNMS

Features:
- On-line performance and alarm information

Delivery:
- 1996

General DataComm, Inc. (GDC) has developed an object-oriented, hierarchical Unix-based network management system called APEX-NMS3000. The system is extremely flexible and completely customizable, enabling service providers to define net elements and their attributes from the ground up to meet their specific needs. No two systems are ever alike. But this flexibility comes at a price, since setting up the system takes a lot of forethought and requires that IS staff be well versed in object-oriented programming.

Carriers using the NMS3000 can define user partitions and set privileges so that customers can view their portion of the net. The system will automatically discover and map any IP devices or GDC equipment. It will also handle any SNMP element in the net once the service provider defines a template for that element.

StrataCom, Inc.'s StrataView Plus can be integrated with HP's OpenView and IBM's NetView for AIX management systems or with a carrier's network operation system. StrataCom has chosen not to go the partitioning route, although it does have a standard SNMP interface available to connect to other network management platforms. Like its competitors, it will also automatically discover and inventory net elements.

In May, StrataCom expanded its net management strategy with the announcement of StrataSphere, a suite of modules that includes billing, connection management, modeling and optimization tools that work with StrataView Plus.

The StrataSphere BILLder module provides carriers with usage statistics down to a virtual connection level in a standard billing format. It can collect as many as one million statistics per hour for billing, performance measurements, and capacity planning and analysis.

Connection Manager provides end-to-end automatic provisioning and connection management. Modeler and Optimizer take existing network configuration information and model the network. Optimizer will perform failure analysis and show the effects of future growth on the net.

StrataSphere also handles customer network management through a service agent and a statistics agent, which provide customers with visibility of their portion of the public net.

AT&T

Switches:
- AT&T GlobeView-2000
- StrataCom BPX

Net management product:
- ATM Customer Network Management Service (CNMS)

Features:
- CNMS SNMP – real-time configuration, alarm and performance information.
- Real-time reporting capabilities.
- CNMS Advanced Reports – weekly performance information on port and circuit utilization.

Delivery:
- Available today

AT&T Network Systems' GlobeView-2000 Service Management Module (SMM) is focused on providing traditional management functions to service providers. SMM is a Unix-based management system that supports node and network management functions for the GlobeView-2000 Broadband System. It provides the ability to partition element and network management functions along functional or geographic boundaries and can be scaled to support large multinode networks.

SMM also provides an SNMP agent so service providers can give customers a view of their networks.

Cascade Communications Corp. offers a graphically oriented SNMP-compliant management platform, dubbed CascadeView, based on the Unix version of OpenView. With the system, customers can control Cascade 6000, 8000 and 9000 multiservice switches, as well as Cascade 500 ATM switches, from a single Windows network map.

A new version of CascadeView, due out this month, will include an expanded architecture and new software modules.

One of the new modules, dubbed Health Checker, provides automated optimization and modeling functions, including provisioning of permanent virtual circuits (PVC) and switched virtual circuits (SVC). Another supports customer net management (CNM) and accounting of net usage and resources. This enables users to not only access their portion of the network to view the status of ATM, frame relay or SMDS, but also to perform cost allocation and resource planning.

Northern Telecom, Inc. will release its Magellan Open Management System (OMS) in the first quarter of 1996. OMS, which is a standards-based distributed management system for the Magellan product line, can extend management to SNMP devices in the network as well as to Fore Systems, Inc. premise equipment. OMS has modular management applications that can incorporate multiple services — such as ATM, frame relay and LAN emulation — and can present multiple views of the network through a graphical user interface or standard command-line interface.

OMS also provides automatic network discovery of managed elements and alarm correlation. The system will provide egress accounting for PVCs and SVCs, as well as billing information in the standard Automatic Message Accounting (AMA) format.

Magellan OMS includes a unique form of on-line help that includes both graphical and video presentations. You can point and click to get a text-based explanation, and a help routine with video and audio can be run for further clarification.

The public persona

One advantage of using a public data network service such as ATM is that the service provider is responsible for network management and availability. If you are a public ATM service customer, you do not need the direct network control that you do in a private net environment.

However, ATM customers do need a comprehensive, graphical view of their virtual private network as a subset of the service provider's public data network. At a minimum, this should provide the ability to receive real-time alarm and near real-time network performance information. You would also probably want a system that can store historical performance information to help with your network planning.

As service providers enhance network management tools for their customers, additional capabilities should be offered, such as dynamic network reconfiguration and an on-line summary of monthly billing information.

But that is not what you're going to get — at least not yet. Net management tools for customers of public services often leave much to be desired. Options for customer management of private lines and voice services have been maturing, and frame relay service management options have been arriving slowly.

SPRINT

Switches:
- NEC Model 10
- Hitachi AMS 5000

Net management product:
- SprintView Manager

Features:
- CNMS Executive/PC – alarm, peformance and configuration information reports.
- SNMP agent will also be available.

Delivery:
- 1996

If you are a user of a public ATM service, however, your options for on-line network management capabilities are limited. In fact, AT&T (which uses its GlobeView-2000 switches) is the only service provider that has any options available today.

GET MORE ON-LINE

You can access more information about this story on Network World Fusion, including:

- **Copies of the first three articles in this series.**
- **Papers on ATM management.**
- **General overviews of ATM.**

To access, point your browser at http://www.nwfusion.com. After you log in, select NetRef, then Technology Resources, then Broadband.

NetworkWorld Fusion

AT&T's ATM Customer Network Management Service (CNMS) offers two options for customers. Advanced Reports are hard-copy reports similar to those provided to frame relay customers that detail port and circuit utilization. CNMS SNMP provides information to your network management platform through an SNMP interface. Customers can get real-time alarm and performance information for their connections.

The other major U.S. service providers, including MCI Communications Corp., Sprint Corp. and LDDS WorldCom, are planning to offer customer network management capabilities to ATM service users in 1996. The capabilities of these first-generation customer management services will be limited to viewing network performance. More advanced functions — such as on-line order entry and changing network configurations in real time — will not be integrated any time soon; don't expect it before the end of the decade.

Some may cry foul and wonder why carriers aren't providing more advanced management features sooner, when it seems to

Management features offered by switch vendors

Switch vendor	Net management system	Network modeling	Network optimization	Billing statistics in AMA format	Automatic discovery	Customer network management
AT&T Network Systems	Service Management Module	Yes	No	Planned	No	SNMP interface
Cascade	CascadeView	Yes	Yes	Yes	Cascade devices only	SNMP interface or Customer Network Management module
General DataComm	APEX-NMS3000	Yes	Yes	Planned	Any IP device	SNMP interface or partitioning
Newbridge	MainStreet 46020	Yes	Yes	Yes	Newbridge devices only	SNMP or CMIP interface, or partitioning
Nortel	Open Management System	Yes	Yes	Yes	Nortel devices only	SNMP, CMIP or CORBA interface, or partitioning
StrataCom	StrataSphere	Yes	Yes	Yes	StrataCom devices only	Partitioning

be within the realm of possibility.

From the carrier perspective, there are two main reasons. First, ATM services are still very young, and the carriers are concentrating on stabilizing and strengthening them. Advanced service options, such as customer network management, are still on the lower end of the priority list.

The second reason is the small volume of customer demand. The harsh reality is that the customer base for public ATM services is too small to justify carrier resources for added service-feature development. In the data world, frame relay has the attention of the carriers; they are struggling to keep up with demand and develop new features and service options for supporting the growing customer base. Even if all the ATM customers screamed at once for carrier-provided ATM network management, their cries would be lost in the frame relay din.

MCI
Switches:
- GDC APEX-NPX
- LightSream 2020

Net management product:
- HyperScope ATM

Features:
- On-line performance and alarm information

Delivery:
- 1996

But don't let the lack of network management offerings deter you from checking out the public ATM services. If you are installing ATM switches at your network locations, your existing network management platform should provide you with the statistics on usage for planning as well as some limited visibility regarding network conditions.

Until public ATM services mature, you will not have the options to fully exploit ATM's virtual networking nature from the service providers.

Future looks bright

The equipment vendors are not letting the service providers' slow rollout hold back more enhancements, however. Several are working to add Intelligent Networking (IN) capabilities to network management.

IN features are built around the processing, billing and routing of calls that are based on factors such as the time of day, caller ID, receiver ID or any other information that can be captured in a database and used to process a call.

The implementation of SVCs will bring new requirements for advanced call processing and accounting features in order to help you attribute costs to the appropriate corporate departments. Some vendors already include time-of-day routing in their network management capabilities for PVCs. A few, like Newbridge, are committed to providing functionality equal to the IN capabilities outlined in the current IN standards. Others are not yet clear on the importance or relevance of integrating IN with data.

Another positive step is the movement to support open standards, such as SNMP and the Common Management Information Protocol (CMIP). All vendors outlined in this article support some level of integration with, or are based on, HP's OpenView. CascadeView has been granted HP Premier Partner certification, which indicates the highest level of standards integration with HP OpenView.

AT&T, Nortel and Newbridge support CMIP interfaces; GDC has plans to support CMIP soon. Support of standard interfaces and network management platforms gives the service provider and the customer more options for extending network management capabilities to the end user.

So, the bottom line is, network management has come a long way from its humble start, and it looks like it's headed in the right direction.

With some luck, and some good scriptwriting, this Irwin Allen movie ends with a few clicks of the button on a net management screen, and all the red blinking lights quickly go away. Anticlimactic, but it will help managers of ATM networks get some sleep at night.

Gage is a consultant at TeleChoice, Inc., specializing in ATM and other broadband services and equipment. She can be reached at (201) 239-0700 or at beth_gage@telechoice.com.

Next month, the final article in the series will review equipment and service provider plans for interworking ATM with data services, such as frame relay.

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Management Strategies

Covering: Career Insights and Innovations in Managing Staff, Budgets and Technology

Briefs

■ **ISOTRO Network Management, Inc.** *has released a single-user version of its* **NetID,** *Microsoft Corp. Windows-based software that helps network administrators solve address and name space management problems in large internetworks.*

Priced at $1,495, NetID stores IP addresses, domain names and Open Shortest Path First Interior Gateway Protocol area information in a SQL database that administrators can use to prevent the issuance of duplicate addresses.

ISOTRO: (613) 722-1921; http://www.isotro.ca.

■ *The* **National Automated Clearing House Association (NACHA)** *is seeking nominations for its annual* **Payment Systems Excellence Award,** *which will be presented at the group's Payments 96 conference April 14-17 in San Francisco.*

The award gives recognition to an individual or corporation that has advanced the use of electronic payment systems and networks. Award winners get an all-expenses-paid trip to the annual conference where they receive their award at a special ceremony. The deadline for submitting nominations is Dec. 15.

NACHA: (703) 742-9190.

Consultancy offers up a deal for client/server migration

By Jim Brown
Edison, N.J.

Trecom Business Systems, Inc. last week announced four new or enhanced client/server migration consulting services that can be purchased as a soup-to-nuts offering or individually.

The systems integrator also said it will open in November its Technology Transition Center, a laboratory that will enable customers to test client/server prototypes before implementation.

To be marketed under the name Cornerstone, the consulting services include Technology Planning Services, Application Portfolio Management, Technology Reskilling, and Systems Integration and Infrastructure Support. Each addresses the technical and organizational issues of moving into the client/server world (see graphic).

Some Cornerstone services are newly developed. For instance, the Technology Reskilling service includes the new StarTrack program, where Trecom consultants act as mentors to a customer's own staff as they design and develop client/server applications.

Alternatively, Trecom consultants can take a more active role in the process.

Other Cornerstone services build on existing Trecom offerings. The Application Portfolio Management service, for example, includes outsourcing arrangements, whereby Trecom assumes responsibility for building or maintaining custom applications.

Systems Integration and Infrastructure Support uses elements of Trecom's Reusable Proof of Concept methodology, whereby the code used to generate a functional application prototype can be reused in whatever is eventually deployed.

©Trecom: (903) 549-4100.

Trecom's Cornerstone

Here's a sampling of what's offered under each service in the program.

Technology Planning
- Recommendations for existing applications to retire, rebuild or preserve.
- Definition of hardware, software and network needs.

Application Portfolio Management
- Evaluation and maintenance of existing systems during migration.
- Use of application development facilities.

Technology Reskilling
- Retraining of customer's staff.
- Use of client/server testing lab.

Systems Integration and Infrastructure Support
- Rapid development of new client/server systems.
- Support in building LAN/WAN management center and help desk.

New books reveal latest networking technologies

By Kathy Scott

Numidia Press has recently published three books that help network managers and staff better grapple with the complexities of building a corporate internet.

One book is a reference guide that explains the basics behind emerging broadband technologies. The other three are part of a self-paced learning series designed to bring junior staff up-to-date on the latest developments in LAN and internetworking equipment.

Written by telecommunications consultant Sadie Lewis and telecommunications engineer Robert Hermes, *ATM/SONET Explained* provides an overview of high-speed networking technologies, including Asynchronous Transfer Mode, Synchronous Optical Network (SONET), Switched Multimegabit Data Service, frame relay and 100Base-T. The book costs $12.95.

At a cost of $24.95, *Mastering Advanced Internetworking* builds on last year's *Mastering Internetworking* and covers the latest advances in bridging and routing, metropolitan- and wide-area networking technologies, backbones and multiprotocol internetworking. Both books were written by Victoria Marney-Petix, a LAN internetworking and management consultant.

Marney-Petix also penned *LANs! LANs! LANs!*, which helps readers understand basic LAN technologies, including access methods, topologies, media and transmission. Costing $24.95, the book also explores client/server computing, middleware, and network management protocols and platforms.

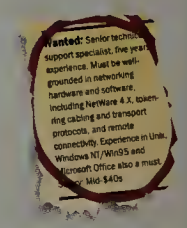
Also available from Numidia is Marney-Petix's *Bridges, Routers, Gateways!* Priced at $29.95, the book examines internetworking technology and business issues.

©Numidia Press: (800) 356-9315; numidia@AOL.com.

MANAGEMENT DATA ON-LINE

Network World peruses on-line services looking for interesting hints or tools that will make your job easier. Here are a few:

Get a job or find a worker



Job seekers and managers looking to hire can tap the JobHunt World-Wide Web site for a long list of on-line employment resources. The list includes links to popular career resource sites, such as The Monster Board, that maintain interactive databases of job listings nationwide. Other links are provided to the following services:

■ **Career Mosaic's** searchable index of jobs that have been posted to more than 20 job-related newsgroups.

■ **The Internet Job Locator** service, which posts jobs and resumes on the Web.

■ **The Bay Area Multimedia Technology Alliance's** Web site, which maintains a listing of job openings in multimedia and Web technology.

■ **The OnLine Career Center,** which maintains a large database of jobs that can be searched in a number of ways, including by type and location.

The JobHunt site also includes links to resume banks, classified advertisement sections of on-line newspapers, recruiting agencies and reference material about career planning, conducting a job search and writing a resume. In addition, links to businesses offering commercial services, such as resume preparation and distribution, are also given. The site also has more than 20 links to other job resource sites.

Overrule job interview objections

The Career Management library in E-Span, Inc.'s Career Management Forum on CompuServe has two articles written by Richard Van Doren, vice president at Manchester Partners International, a management consulting firm in Princeton, N.J. The articles provide hints for handling difficult questions and differences of opinions during interviews.

The first provides pointers on what to say when an interviewer questions your lack of credentials, such as the experience, advanced degree or technical certification required for the position. The second article gives a set of example responses to such tough questions as, "How do you develop and treat subordinates?" and "Can you describe your last, best and worst boss?"

To the aid of token ring

The Alliance for Strategic Token Ring Advancement and Leadership (ASTRAL) has established a Web site to educate token-ring users about enhancements to the technology. ASTRAL has 18 major vendors as members, including 3Com Corp., IBM, Madge Networks, Inc., Hewlett-Packard Co. and Bay Networks, Inc.

NetworkWorld Fusion

Visit our site at http://www.nwfusion.com. for links to sites mentioned here. After you log in, select NetRef and then look for Hotlinks of the week.

The Web site will enable the group to publicize its user symposiums, distribute white papers and tip off users to token-ring interoperability demonstrations. The alliance will also provide material to help users achieve network efficiency and effectively migrate to new technologies such as Asynchronous Transfer Mode, token-ring switching and LAN emulation.

Other ASTRAL programs include developing new communication channels between the industry and users, and pushing for the rapid adoption of IEEE 802.5 standards for dedicated token ring.

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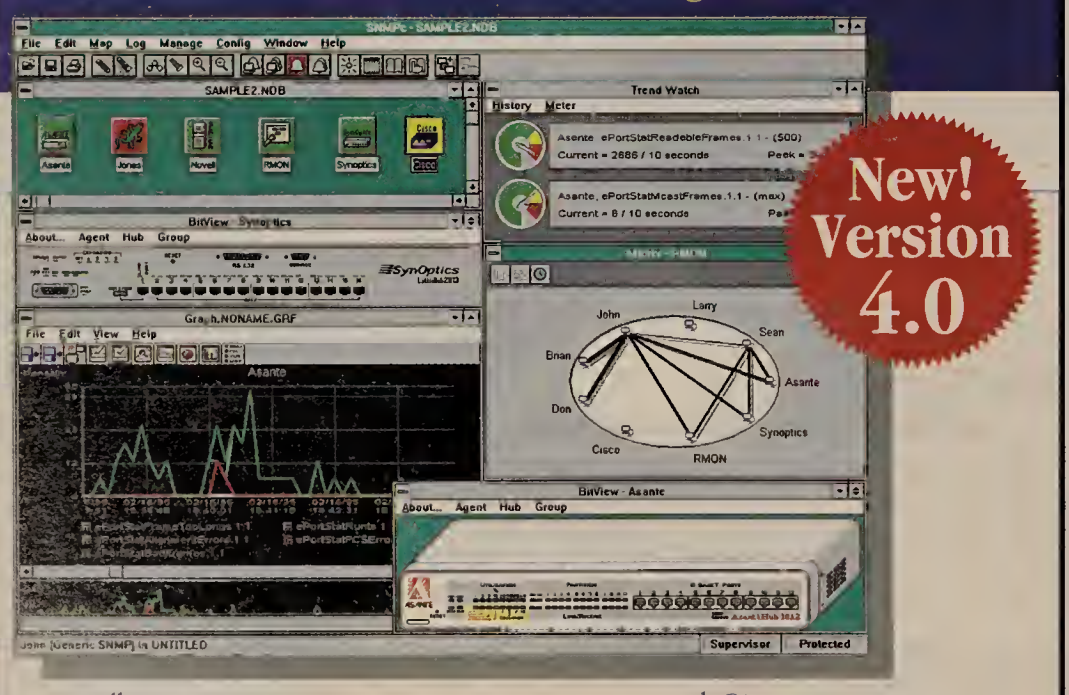

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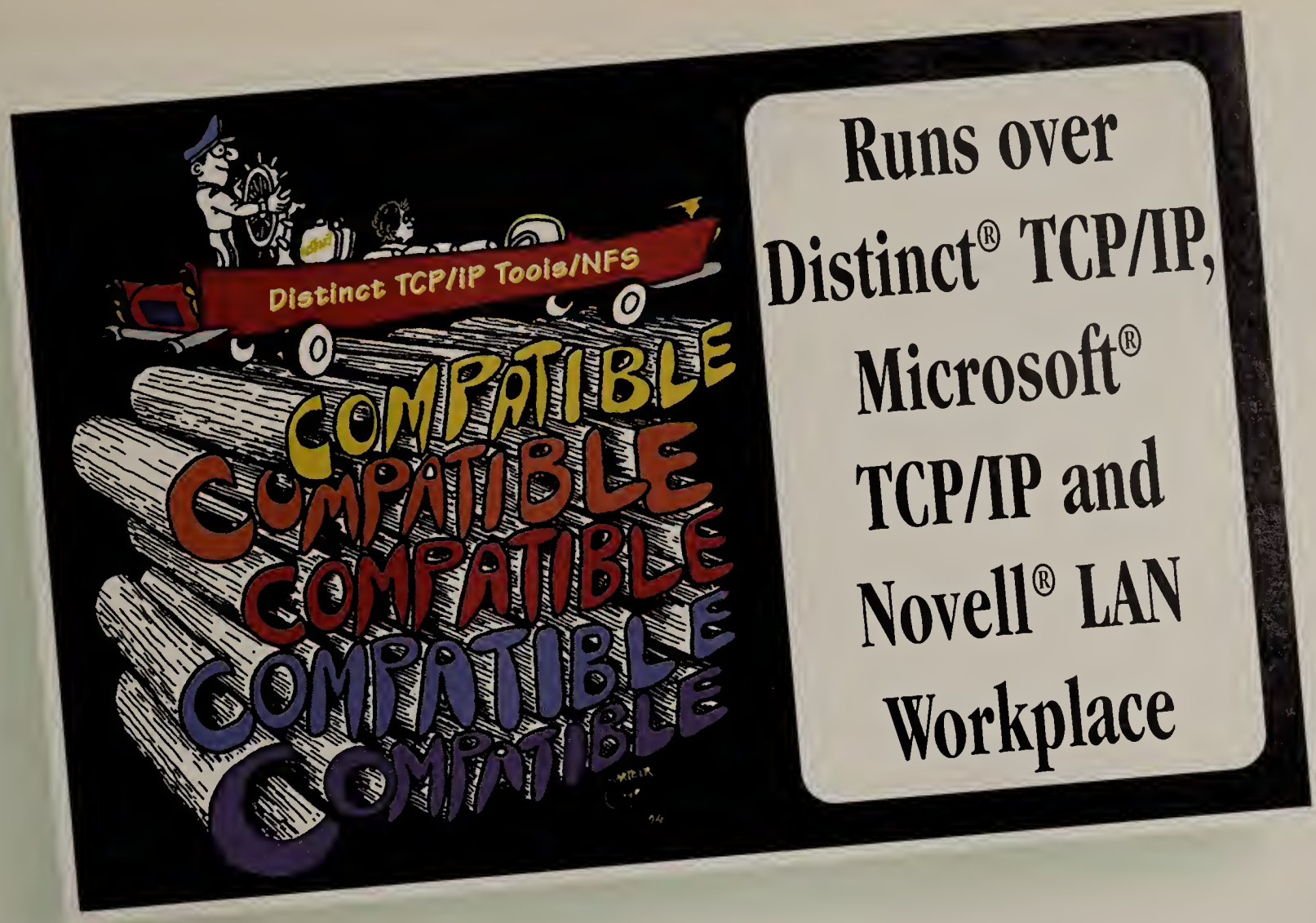

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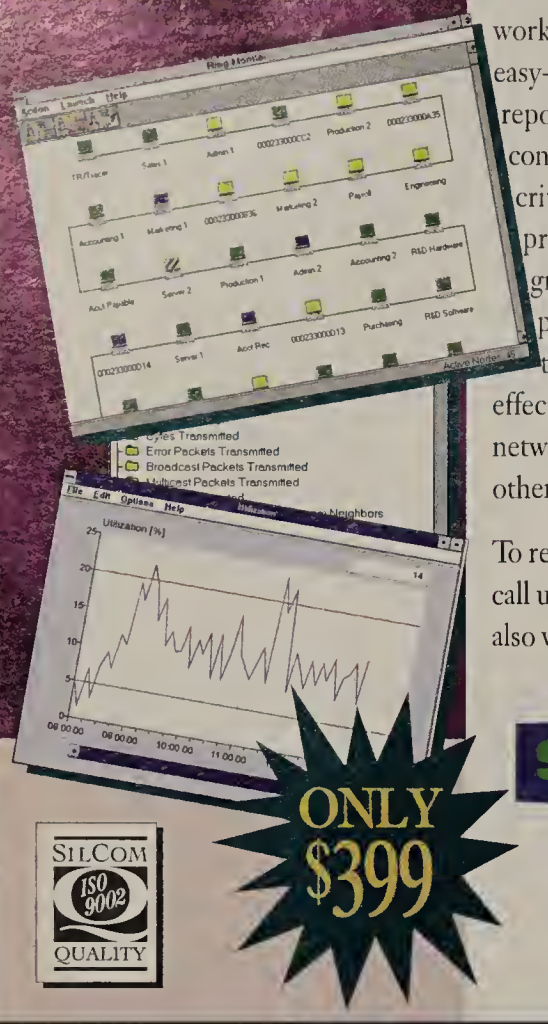

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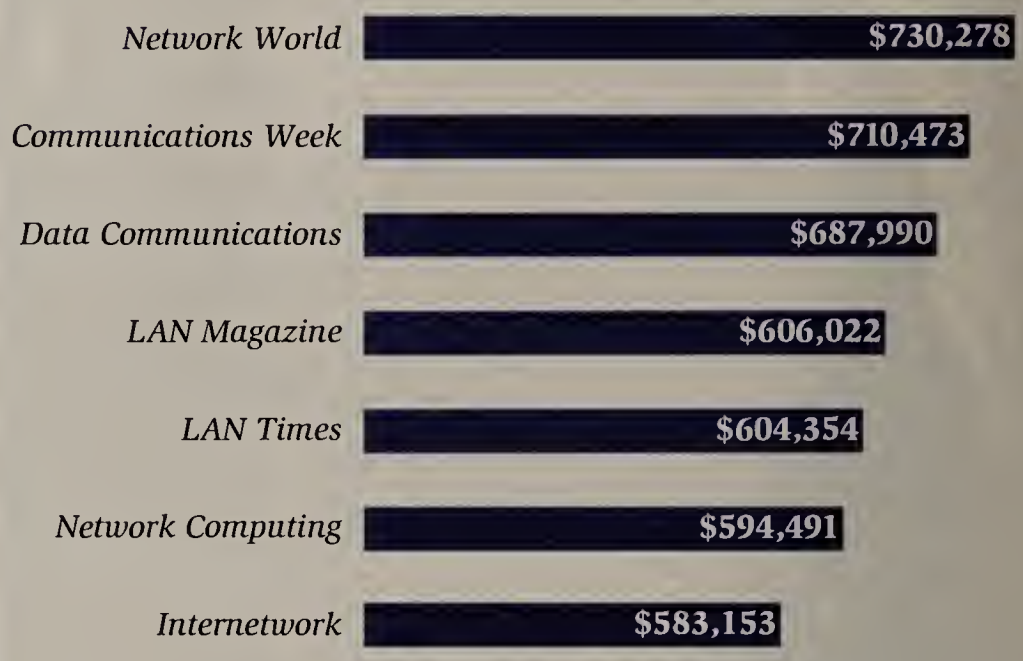

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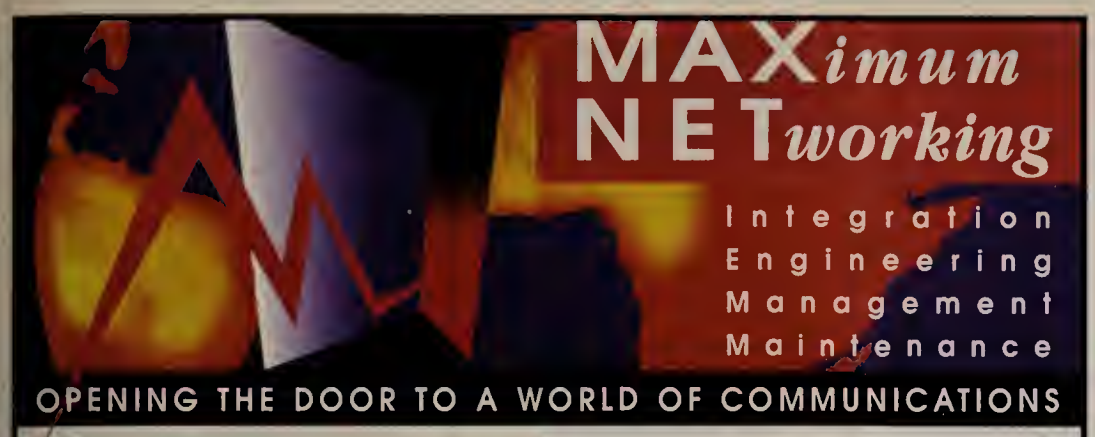

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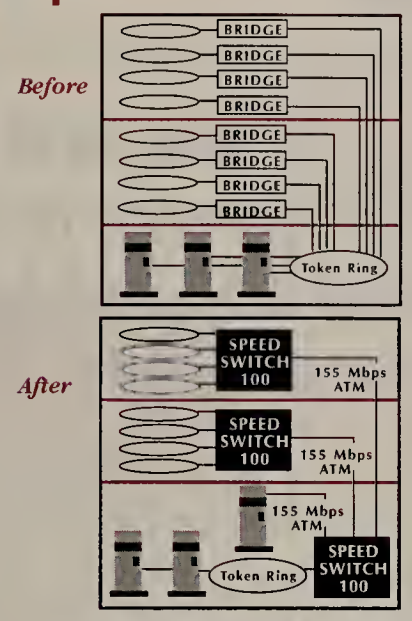

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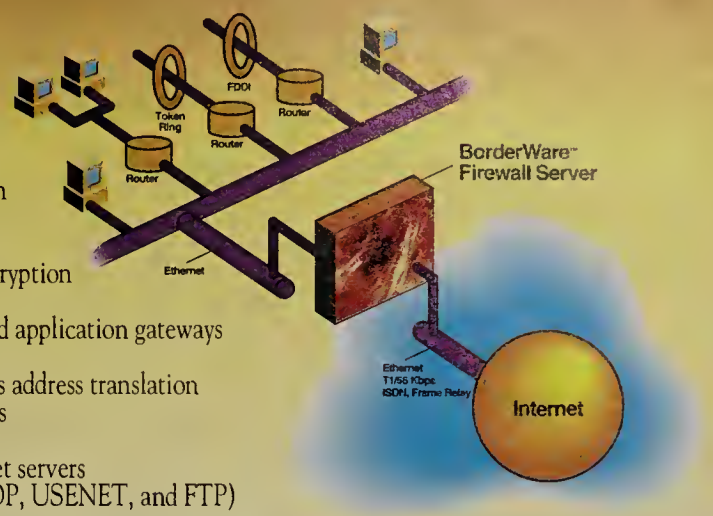

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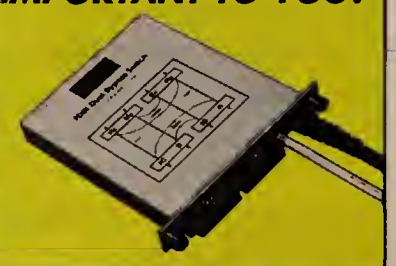

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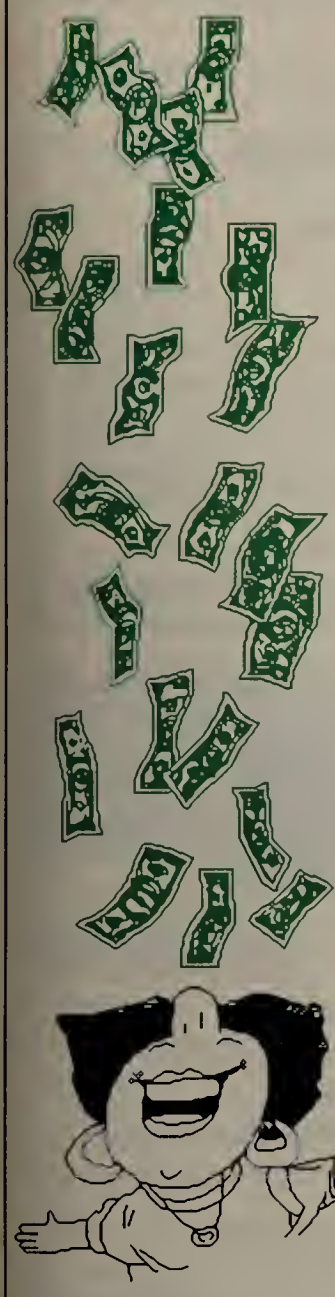

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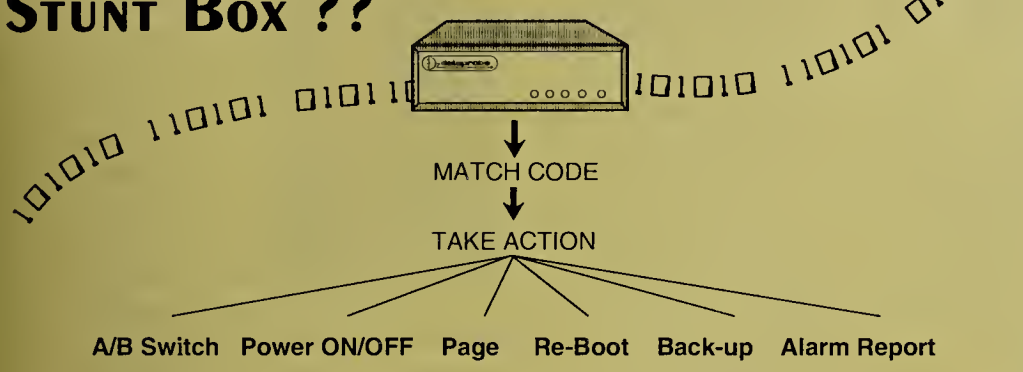

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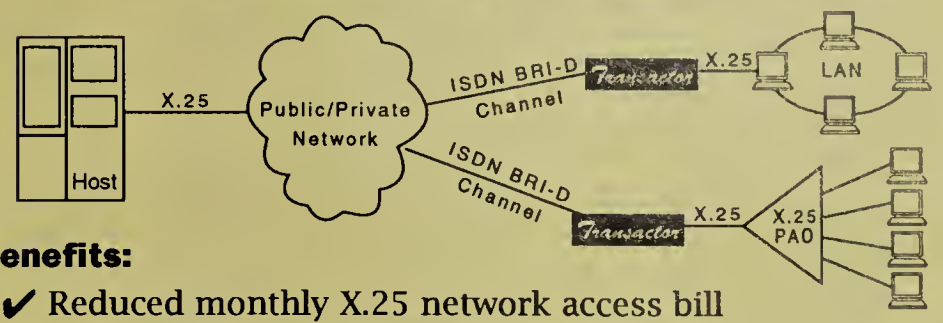

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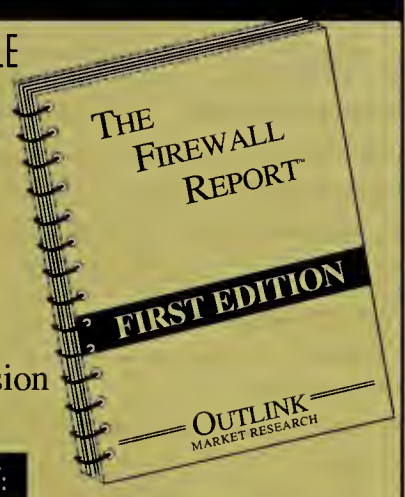

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Microsoft

Continued from page 1

the company is pushing new Web servers and a browser with which it hopes to dethrone Netscape Communications Corp., Open Market, Inc. and other Web powerhouses.

Randall's *firm is caught in the midst of a standards war on the Internet.*

It might work. Microsoft may be able to quickly capture market share by giving its browser away for free and bundling its Web software into Windows NT Server, Johnson said.

One analyst concurred, saying that Microsoft will launch the NT Server/Web bundle next year. "This will allow them to create a critical mass of users rather quickly," said John Robb, analyst with Cambridge, Mass.-based consultancy Forrester Research, Inc. What's good for Microsoft might not be best for all.

Users will eventually pay the price, getting fewer choices, if competition is eliminated, Johnson noted.

Microsoft is also proposing an array of Internet multimedia and security standards to govern electronic commerce, Allchin said. Simultaneously, Microsoft is disdaining technologies its competitors already have developed, such as Sun Microsystems, Inc.'s Java language for the Web.

Microsoft's image may be the firm's worst enemy. "There's a lot of anti-Microsoft sentiment in the way they attempt to dominate the market," said Andy Schwab, vice president at Raleigh, N.C.-based consultancy Trinet Services, Inc., which manages First Union Bank's Web secure server for accepting credit card applications. "The Internet tends to support technology by popular demand, and I don't think Microsoft understands that," Schwab said.

But the firm is undaunted. "Virtually every group at Microsoft is involved in relating its products to the Internet in some way," said Mike Conte, Microsoft's group manager of the personal systems division.

Microsoft also has its eyes on the electronic commerce prize. Last week, Visa International, Inc. and Microsoft jointly published the Secure Transaction Technology (STT) spec used to pass encrypted credit cards from Web browser to server and into existing bankcard verification networks worldwide.

STT trumps the Netscape security standard called Secure Sockets Layer (SSL), which only handles data encryption between the browser and server, pointed out John Pescatore, an analyst with Vienna, Va.-based IDC Government. "Visa has this well-thought-out," Pescatore said. "And where the big guys go, the rest will follow in electronic commerce."

MasterCard International, Inc. declined to endorse STT, accusing Visa of backing away from a commitment the two had to develop a common standard.

Netscape, which plans to proceed in issuing its own end-to-end credit card security spec with MasterCard later this fall, warned that joining the Microsoft-Visa camp will mean turning electronic commerce into a tollbooth for Microsoft.

"We are putting our spec out in source code we will license for free," said Mike Homer, Netscape's vice president of marketing. "But Microsoft is only publishing the spec and licensing the source code for a fee."

Some analysts predicted there will be a backlash to Microsoft's insistence on licensing STT. "That's Microsoft's old business model rearing its ugly head," said Michael Sullivan-Trainor, an analyst at Framingham, Mass.-based research firm International Data Corp.

There are relatively few businesses on the Internet today that use secured Web servers to process credit card transactions. But those that do expressed dismay at being caught in the cross fire of a standards battle.

"It's not in anybody's best interest to have two standards," said Scott Randall, general manager at NECX Direct, which sells computer hardware and software to corporate accounts and individual consumers by processing credit cards through a secured Web server. ■

HOW MICROSOFT PLANS TO RULE THE 'NET

- By pushing Web browsers Explorer 1.0 and the upcoming Explorer 2.0, which only run on Windows 95. These browsers, aimed squarely at Netscape, dial the Internet directly through The Microsoft Network.
- Through a proposed Internet video and sound standard for real-time multimedia playback on Web sites.
- By proposing security specifications, one called Secure Transaction Technology (STT) for end-to-end handling of Visa credit cards and another dubbed Private Communication Technology (PCT) for server authentication and encryption.
- With its Catapult security tool kit, which can implement security features at any Web site.
- With the Internet Assistant add-on to Microsoft Word that converts Word files to HTML.
- By offering Blackbird programming tools to prepare content for Web sites, now out in beta.
- With new Windows NT Web servers, one called Gibraltar that lacks encryption features. A second merchant transaction server uses the PCT, STT and S-HTTP security specs. The nonsecure Gibraltar is currently in beta. No shipping dates have been announced.

Costs

Continued from page 1

vides a window into a shared-LAN segment, each switch port is essentially its own LAN.

Therefore, many of the management tools used in shared environments — such as the current version of Network General Corp.'s Sniffer — will become obsolete in the switch world, forcing managers to get new tools.

Ram Das Rao, manager of network systems at Boston University, said the lack of good management tools makes it hard for him to tell if he is getting what he paid for with switching. "There aren't any tools that let me see how the switched traffic flow is different than the shared environment. So I can't really tell if the switches have helped solve my net performance problems," he added.

As customers implement switching, they can expect to spend more time on network modeling, traffic analysis, end-to-end net monitoring and troubleshooting.

And one capability analysts said will be essential for users to effectively manage a switched environment is RMON, a Simple Network Management Protocol technology for managing remote network devices from a central site.

RMON products could help save users money, according to one analyst, who figures that running a switched network with RMON will allow users to significantly reduce the size of their IS staff.

According to Nick Lippis, president of Strategic Networks Consulting, Inc. in Rockland, Mass., people costs account for the lion's share of the overall campus network budget at 37%.

THOMAS S. ENGLAND

Gogan *says paying more for sophisticated switches now will save him more later.*

"RMON might be able to cut the manpower down by about one-third," he said.

In addition to tools for monitoring switched LAN segments, users will need tools to group those same segments together logically, irrespective of physical location. So virtual LAN management and configuration support will be important.

While users will need to invest in sophisticated management tools in order to maintain switched nets, analysts said they will be worth the price. "Users should value net management and be willing to pay more for [it]," Lippis said. "Users will get a return on their investment by not having a large staff managing and running the network."

THOMAS S. ENGLAND

Maaskant *says the combination of LAN switching and good management tools could save her firm money.*

A Cabletron Systems, Inc. switching hub user said avoiding the need to hire additional IS people would save her big bucks. "If I had to hire new staff members, it would have cost me an average of $40,000 per head," said Barbara Maaskant, director of IS at the Rollins School of Public Health at Emory University in Atlanta.

Jim Gogan, director of computing and networking systems at the University of North Carolina at Chapel Hill, is also migrating to switching and said he figures that paying more for a switch with sophisticated management features may prove to be more cost-effective in the long run.

"You must have the tools to look at real-time network utilization; otherwise, you'll have to spend too much time trying to figure out problems — which will obviously affect network productivity," he said. ■

Vendor view

Vendors are responding to the need for top-notch management devices by readying critical management tools and applications for their switch products.

For example, Cabletron Systems, Inc. is developing its SecureFast Management Application — which will initially run on top of Spectrum and, later, on other vendors' net management platforms — to control a switched network and a shared network from one management console. This affects training costs as well as total cost of ownership, according to Wade Appelman, product marketing manager at Cabletron.

"If you only have to train net managers to learn one management application to control your switched and shared nets, that's a big savings," Appelman said. "Plus, since you are only using one product, you will only have to pay one vendor's support fee."

One analyst said Bay Networks, Inc. will also provide users with rich management features. For example, Bay plans to add the Switchman management application to its Optivity platform, said Nick Lippis, president of Strategic Networks Consulting, Inc. in Rockland, Mass. Also, Lippis said Bay is building Remote Monitoring into its switch devices as well as developing virtual LAN management tools.

Lippis added that 3Com Corp. and Cisco Systems, Inc. are making investments in net management, but he thinks they are trailing now in the market.

"Those vendors that choose to lead in network management will garnish the most market share and offer the clearest differentiation to help people transition from shared LANs to switched networks," Lippis said.

AT&T

Continued from page 6

the term plan without penalty, so long as the user had maintained its volume commitments.

AT&T said the affected term plans included Tariff 12 options, contract tariffs and regular term plans for most outbound and inbound services. Users of AT&T's nearly 3,000 contract tariffs in particular enjoy large discounts on regular AT&T rates but have been subject to rate swings even during the life of the contract.

But some observers had difficulties with the plan. For example, even if a user decided to leave a term plan without penalty, the 60-day limit adds pressure, said one longtime negotiator for users who asked not to be identified. "It's not exactly bargaining from strength if you have to go to another carrier."

Customers were wary, as well. AT&T giving itself the choice as to whether to grandfather rates or give users the option to terminate "sounds like a bad deal [because] 60 days is no time at all" to come up with a contract with another carrier, said Bob Neumann, director of global networking at Visa International, Inc. in San Francisco.

And in a statement that left observers scratching their heads, Salemme said that "underlying tariffs" would not be affected by the guarantee. Skeptics said that leaves open the possibility that a user with a contract tariff offering discounts to, for example, AT&T's popular Software-Defined Network (SDN) could still be affected by increases in SDN rates. This despite the guarantee against changes in "rates, terms and conditions."

Senior Editor Joanie Wexler contributed to this story.

NetworkWorld

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Framingham, Mass. 01701-9172
(508) 875-6400

Second-class postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #0385662. *Network World* (USPS 735-730) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 161 Worcester Road, Framingham, Mass. 01701-9172.

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Nonqualified subscribers: $5.00 a copy; U.S. — $95 a year; Canada — $117.70 (including 7% GST, GST #126659952); Central & South America — $110 a year; Europe — $165 a year, all other countries — $245 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

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ISSN number: 0887-7661.

Cisco

Continued from page 1

The Grand Junction buy also adds muscle to the CiscoFusion switched internetwork migration strategy, which is based on using a combination of switches and routers.

"We've avoided [desktop switching] for some time," said Jayshree Ullal, Cisco's director of marketing. "But now CiscoFusion extends beyond the backbone and workgroup to the desktop."

Grand Junction offers a line of devices dubbed FastLink that provide dedicated 10M bit/sec bandwidth to the desktop. They also connect clients to servers, backbone hubs and switches via shared or switched 100M bit/sec links.

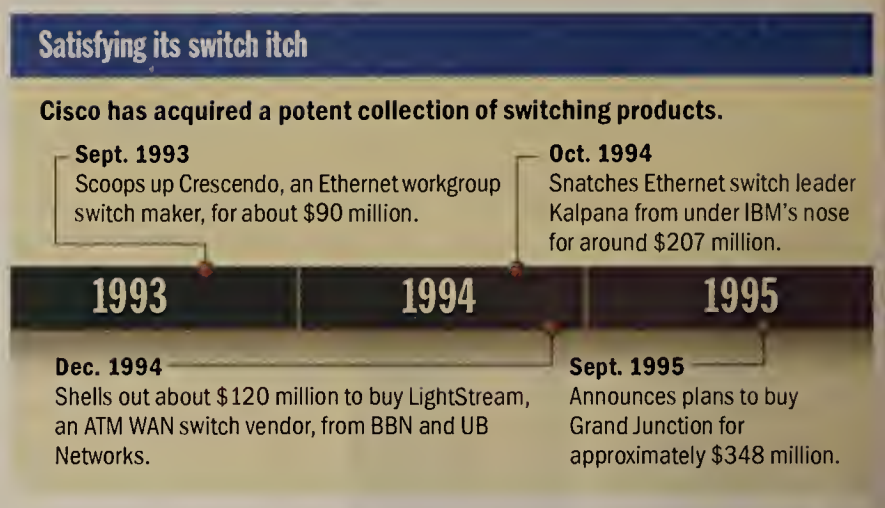
At $150 to $400 per port and with support for one to 1,000 media access control (MAC) addresses, the FastLink line is optimal for supporting desktop applications, Ullal said.

Cisco's Kalpana switches also support dedicated 10M bit/sec to the desktop and an optional 100M bit/sec uplink. But they are priced at $375 to $600 per port, can be configured to support a maximum of 192 ports and can accommodate 1,000 to 16,000 MAC addresses, making them better for connecting hubs into switched workgroups.

Of Cisco's competitors, 3Com Corp. also offers a fast Ethernet version of its LinkSwitch at prices comparable to those of FastLink.

Bay Networks, Inc. does not have a comparable desktop offering, but analysts expect the company to address this area.

Cisco will compete more heavily with 3Com in this space, given that Cisco is moving aggressively to pump its low-end products through indirect channels that have been a pipeline for 3Com gear for years, said Eric Hindin, program manager for market research at The Yankee Group in Boston.



MARK ESCHER

"We've acquired a company that is able to go to the desktop."

John Chambers, Cisco CEO and president

Grand Junction customers welcomed the acquisition, viewing it as Cisco's endorsement of Grand Junction's direction.

"There's always a potential drawback that larger companies will take away the entrepreneurial spirit [of the acquired firms]. But fast Ethernet will probably continue to evolve because the big boys are now focused on it," said FastLink user Jerry Zickrick, IS director at ProBusiness, Inc. in Pleasanton, Calif.

Zickrick said he believes Cisco will help take his company into enterprisewide switched virtual networking.

Following the blueprint

Indeed, in keeping with its CiscoFusion blueprint, Cisco will add elements of its Internetwork Operating Systems software to the FastLink switches to give them the switching and routing intelligence required in new virtual LAN environments.

Cisco also has ahead of it the task of making sure its customers can manage all its switches, routers and remote access products under a common network management scheme. Some of that work has already been done.

Grand Junction will become the desktop division of Cisco's workgroup business unit. The acquisition is expected to be completed by the end of this month. ■

IBM

Continued from page 1

Other backers include Digital Equipment Corp., Bell Communications Research and Seagate Enterprise Management Software.

"The inability to manage client/server-based applications is the single biggest inhibitor to" developing and deploying them, said Leo Cole, IBM's manager of systems management and global design.

IBM is addressing this problem in a new SystemView application and agent software combination that would let net managers monitor and control the performance of applications distributed across the enterprise. Cole said the application would run on any platform and gather data from distributed agents in remote applications.

Grab your tool kit

IBM is also developing a toolkit that would let users embed a performance management "applet" in homegrown applications. SystemView is IBM's series of integrated management products designed to help users manage multivendor enterprise nets.

These distributed agents are based on IBM's recently announced Common Agent Architecture, which is aimed at helping network administrators more easily manage desktop devices (*NW*, Sept. 18, page 1). The architecture is based on the Desktop Management Task Force's Desktop Management Interface (DMI) and includes an SNMP mapping component that lets users combine existing SNMP data with new DMI-compliant device information on a single management console.

"The inability to manage client/server-based applications is the single biggest inhibitor to" developing and deploying them, Cole said.

Being able to integrate SNMP, DMI and application management information on one screen would be a boon to users frustrated at having to buy different products to manage pieces of their enterprise environments.

"We have to be able to do much more than just tell if an application is up or down — application management is more complex than that," said Michael Erlinger, a member of the technical staff in computer systems research at The Aerospace Corp. in El Segundo, Calif.

The application management tools IBM is working with will help bring mainframe-like capabilities to the distributed world, said Anura Gurugé, an independent analyst in New Ipswich, N.H.

IBM also intends to use its agent technology to develop other applications that will simplify users' lives. For example, since IBM agents will run on Microsoft Corp., Novell, Inc., Digital Equipment Corp. and Sun Microsystems, Inc. platforms, it will be easier to distribute software across multivendor environments than it is today with NetView Distribution Manager, Cole said.

On the application development front, IBM said it will be extending its MQSeries product to link with SAP AG's client/server-based R/3 software. This will enable customers to link data in SAP and other applications, something that could not be done easily before, said Steve Craggs, senior manager of IBM's MQSeries business. ■

COMMENTS?

See "How to reach us" on page 5.

Back to Reality

AT&T's second breakup proves that bigger is not always better

In an interview nearly two years ago, John Zeglis, AT&T's senior vice president and general counsel, said the company's divestiture in 1984 was a painful but necessary cold shower. "AT&T has come out of the past 10 years in fighting-trim condition," he said.

That overoptimistic comment came amidst industry euphoria about the convergence of computers and communications.

A few weeks ago, Robert Allen, AT&T's chairman and CEO, owned up to the fact that the strategy was flawed.

In a memo to AT&T employees, he said the cost of managing a vertical, integrated company offering products and services was too high. Minutes after Allen E-mailed his memo to AT&T staffers, the new AT&T breakup was announced.

David J. Buerger

By Jan. 1, 1997, AT&T will become three independent, publicly traded companies: one $49 billion communications and financial services firm, one $20 billion communications systems vendor and an $8 billion computer manufacturer, all based on 1994 revenue.

Breaking up is hard to do

The contrast between the first and second breakups is startling.

Divestiture One started on Jan. 1, 1984. It generated fear and uncertainty. Nearly a decade later, Zeglis likened the process to dismantling a 747 "while it was flying and putting it back together without anything crashing."

AT&T's first divestiture worked. The company avoided prolonged litigation with the Department of Justice, and the breakup ignited tremendous competition in long-distance services.

Customers got lower service costs and better quality of service. AT&T got a bigger market for long-distance services.

Divestiture One also caused great internal corporate turmoil. AT&T started the process with more than a million employees; about 60% were transferred to the new Baby Bells, and AT&T dismissed another 100,000. Many longtime staffers still yearn for the good old days.

Early reactions to the second spin-off are different. Outsiders labeled Allen's move as bold, gutsy and smart. Wall Street agreed. AT&T's stagnant stock price jumped nearly 11% the day of Allen's announcement, adding about $9.5 billion in market value.

Investors anticipate that much of the new value in the divested companies will come from job cuts. Observers expect at least 20,000 more jobs to disappear from AT&T's current roster of 302,000 employees.

Allen will stay on as head of the services company, which delivers about 80% of AT&T's annual profit. The other two groups sport 60% of AT&T's employees. AT&T's Global Information Solutions computer group is a boat anchor, having hemorrhaged nearly $500 million in red ink this year.

Growing stagnant

Allen admitted that AT&T's vertical integration operation was too big to manage. He did not forswear bigness per se, just the amalgamation of too many big, disparate business units. That complexity had stripped AT&T of its ability to be nimble in a fast-paced industry.

AT&T's admission has important implications for other network vendors on acquisition binges. The strategy of vendors such as IBM, Cisco, 3Com and Bay Networks is to use acquisitions to grow bigger, largely to offer a full product line and to compete worldwide.

Other business sectors, such as health care, entertainment, financial services and utilities, are also following this trend.

Size may be important for worldwide competition. But bureaucracy also promotes stagnation of ideas and innovation. AT&T learned that the hard way.

Indecent exposure

Bigness also exposes bureaucracies to competition from smaller, more nimble companies whose sales stories are often easier to understand. Network managers will have to stay sharp to separate fact from fiction with acquisition-oriented vendors struggling to integrate new prizes.

When all is said and done, Allen's decision to divorce AT&T's services group from the manufacturing and computer divisions was his own. Although it came as a surprise, only he knew the pains of trying to run a huge integrated firm, only he could see the cracks forming.

An ancient Greek essayist once wrote about a newly divorced Roman; he was besieged by friends asking about his ex-wife's shortcomings. The Roman held out his shoe and asked whether it was not new and well made. "Yet none of you can tell where it pinches me," he said.

Allen deserves credit for admitting AT&T's weaknesses and choosing a new path.

Buerger is an Atlanta-based writer and industry consultant. He can be reached at dbuerger@pipeline.com.

ABEND

abend *(n)* **1:** abnormal end to a computer process **2:** the column that spares no expense to bring you the insights of Internet users and other high-tech wits

Surfin' the Net

(Terri Cutherell)

So I think I'm in the clear,
the boss is nowhere in sight.
I log on to the Web and start to surf,
and then my hair stands up with fright.

The footsteps coming down the hall
are quickening in pace,
there is no time to exit,
no way to save my face.

So I press the power button
and relax just a bit,
there is no way he can tell
exactly what I hit.

I act all surprised,
don't know why my machine died,
"simply unpredictable these
computers are!" I cried.

"So we'll get you a new one,
a computer that won't crash," he exclaims.
Do you think he'll wonder
when the new one acts the same?

Win95 overhyped?

(rec.humor.funny)

Seen on the billboard outside The Cecil, one of Vancouver's "classier" strip bars: **If you thought Win95 was exciting, wait until you see sisters Shauna and Julia!**

Seen on a sign held up by a derelict:
Will uninstall Windows 95 for food!

Microsoft fights back

(Live from NetWorld+Interop)

Microsoft Senior Vice President Jim Allchin used a keynote address last week to showcase some Microsoft ads you probably won't see anytime soon.

One showed an Italian monsignor taking confession from a young priest. In subtitles, the priest says: "It's been six weeks since I backed up my hard drive. I tried to hack into the Vatican mainframe....But there's more. I've had impure thoughts about that young nun in the IBM commercial." As penance, he's told to download three Hail Marys and log on to Mother Teresa's Web site.

Another showed a woman walking along the beach. Suddenly, she stops, reaches up to her hat and tears out a fax page from a slot in the back of the hat. "Have you ever worn a fax machine on your head? You will!"

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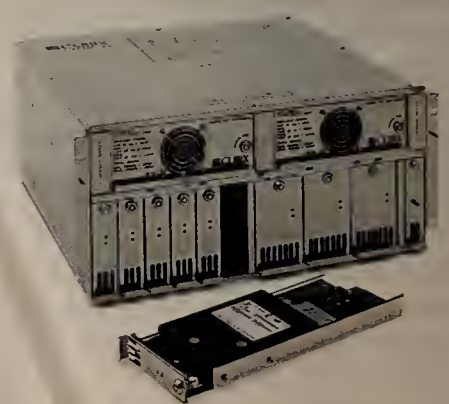
Serious servers require serious storage. Serious about *fault tolerance* and *performance.* Serious about *capacity* and *adapting* to changing requirements. Serious about *management* and *ease of service.* Serious about saving *space*...and *money.* SafeStor/FT is serious storage.

MORE STORAGE IN LESS SPACE.
SafeStor/FT consolidates over 25GB of storage on one SCSI channel in a single rackmount fault tolerant chassis.

MORE STORAGE FOR LESS MONEY.
SafeStor/FT's configurable SCSI backplane supports multiple servers, saving you space and money.



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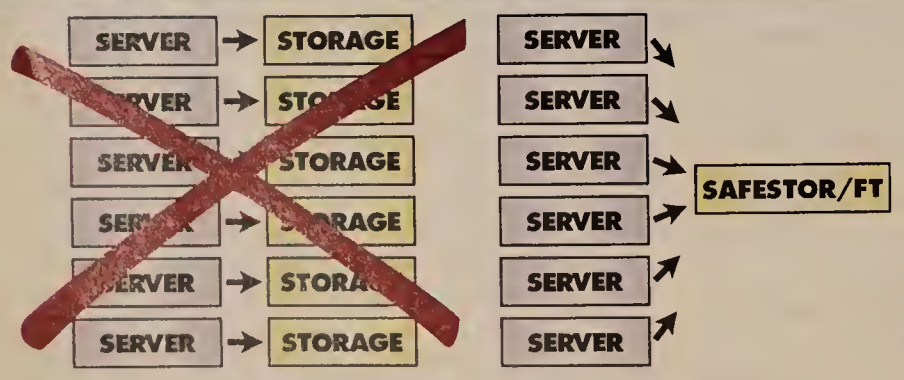

One SafeStor/FT provides hot-swappable storage for as many as six independent servers, at a low cost per megabyte.

If you've got serious storage, server or communication projects, we've got serious solutions. Call us at...

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